

THE GOVERNMENT OF THE PHILIPPINE ISLANDS
DEPARTMENT OF AGRICULTURE AND NATURAL RESOURCES
BUREAU OF AGRICULTURE



TWENTY-FIFTH ANNUAL REPORT OF THE BUREAU OF AGRICULTURE

Division of Publications
FOR THE

FISCAL YEAR ENDING DECEMBER 31, 1925

STANTON YOUNGBERG

DIRECTOR OF AGRICULTURE



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Division of Publications

**TWENTY-FIFTH ANNUAL REPORT OF THE
BUREAU OF AGRICULTURE**

Sir: I have the honor to submit the following annual report of the Bureau of Agriculture for the year ending December 31, 1925.

AGRICULTURAL CONDITIONS:

Palay, sugar cane, coconuts, maguey, and coffee yielded during the year under review the largest crops ever gathered in this Archipelago. All other crops and by-products registered decreases ranging from 3 to 24 per cent as compared with the preceding year 1924, and some showed slight decreases, too, in the area cultivated, generally because of unfavorable weather, and the attacks of plants pests during that year and the year before.

September, 1924, was extraordinarily dry and was preceded and followed by two months of continuous heavy rains and by floods occasioned by typhoons in and around the Islands, which conditions combined damaged about 5 per cent of the total area planted to all crops as against 18 per cent in 1924, while the prevalent plant diseases damaged this year about 2 per cent of the total crops planted as against 1 per cent the year before.

However, the farmers found compensation in the prices, for most crops were disposed of at higher rates than in 1924.

The following table shows for 1903, and from 1910 to 1925, the combined area planted to the six leading crops of the Islands—"palay" (rough rice), sugar cane, coconuts, abaca, corn, and tobacco, with their aggregate value since 1910; the average value of production per capita, and the average value of production per hectare. Table II shows for 1903, and from 1918 to 1925, the total population of the Islands, the area planted to the leading crops and the area per capita.

* To conform to the crop seasons of the different products, the crop statistics given everywhere in this report are, however, for years ending

TABLE I

Years	Area in hectares	Value	Average value of production per capita	Average value of production per hectare
1903	1,170,100	₹137,000,900	₹15	₹81
1910	1,266,530	145,501,510	27	71
1913	145,210	145,501,510	27	71
1917	303,870	145,501,510	27	71
1918	303,870	145,501,510	27	71
1919	303,870	145,501,510	27	71
1920	303,870	145,501,510	27	71
1921	303,870	145,501,510	27	71
1922	303,870	145,501,510	27	71
1923	303,870	145,501,510	27	71
1924	303,870	145,501,510	27	71
1925	303,870	145,501,510	27	71
1926	303,870	145,501,510	27	71
1927	303,870	145,501,510	27	71
1928	303,870	145,501,510	27	71
1929	303,870	145,501,510	27	71
1930	303,870	145,501,510	27	71
1931	303,870	145,501,510	27	71
1932	303,870	145,501,510	27	71
1933	303,870	145,501,510	27	71
1934	303,870	145,501,510	27	71
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1959	303,870	145,501,510	27	71
1960	303,870	145,501,510	27	71
1961	303,870	145,501,510	27	71
1962	303,870	145,501,510	27	71
1963	303,870	145,501,510	27	71
1964	303,870	145,501,510	27	71
1965	303,870	145,501,510	27	71
1966	303,870	145,501,510	27	71
1967	303,870	145,501,510	27	71
1968	303,870	145,501,510	27	71
1969	303,870	145,501,510	27	71
1970	303,870	145,501,510	27	71
1971	303,870	145,501,510	27	71
1972	303,870	145,501,510	27	71
1973	303,870	145,501,510	27	71
1974	303,870	145,501,510	27	71
1975	303,870	145,501,510	27	71

TABLE II.—Area planted in hectares

Year	Palay	Corn	Sugar cane	Cotton	Abaca	Tobacco	Total
1903	592,744	187,980	71,895	148,245	217,810	31,417	1,170,103
1910	368,140	418,310	285,410	315,000	812,510	78,440	2,018,590
1919	38,340	430,710	290,260	873,260	516,560	73,860	2,974,920
1920	484,850	337,130	187,400	357,390	619,800	101,120	3,076,930
1921	473,386	648,830	241,360	417,980	546,090	90,380	3,415,280
1922	641,430	843,950	240,820	422,680	494,930	33,876	3,423,780
1923	678,878	647,690	227,780	485,830	613,420	64,760	3,485,830
1924	787,910	523,230	227,190	460,430	485,340	72,090	3,516,230
1925	723,400	532,380	229,470	472,090	477,110	51,630	3,508,140

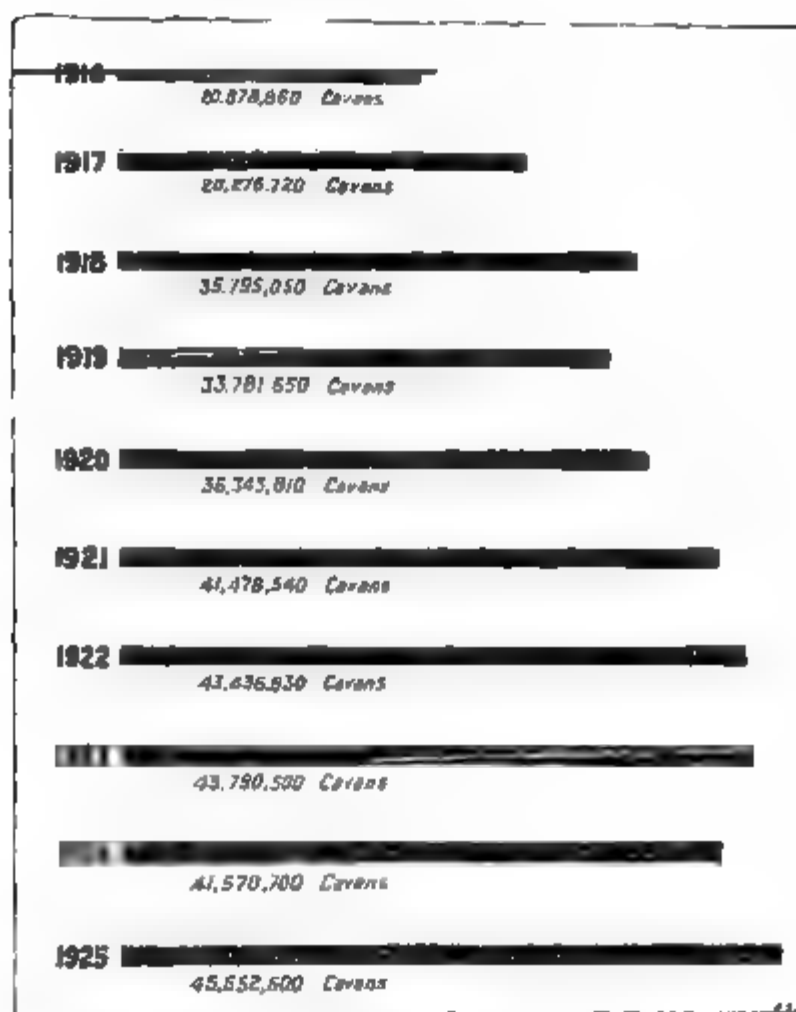
Number of hectares per capita

Year	Population	Palay	Corn	Sugar cane	Cotton	Abaca	Tobacco	Total
1903	7,638,426	0776	0142	8091	0194	0225	0041	1582
1910	10,314,510	1326	0406	0199	0326	0197	0078	2829
1919	10,681,339	1309	0408	0190	0313	0199	0070	2819
1920	10,784,225	1374	0408	0183	0357	0198	0074	3028
1921	11,042,450	1316	0492	0214	0379	0198	0082	3182
1922	11,296,447	1471	0487	0213	0374	0198	0083	3076
1923	11,548,266	1450	0493	0197	0396	0198	0086	3076
1924	11,820,081	1470	0451	0183	0353	0198	0081	2914
1925	11,847,699	1464	0441	0202	0397	0199	0080	2900

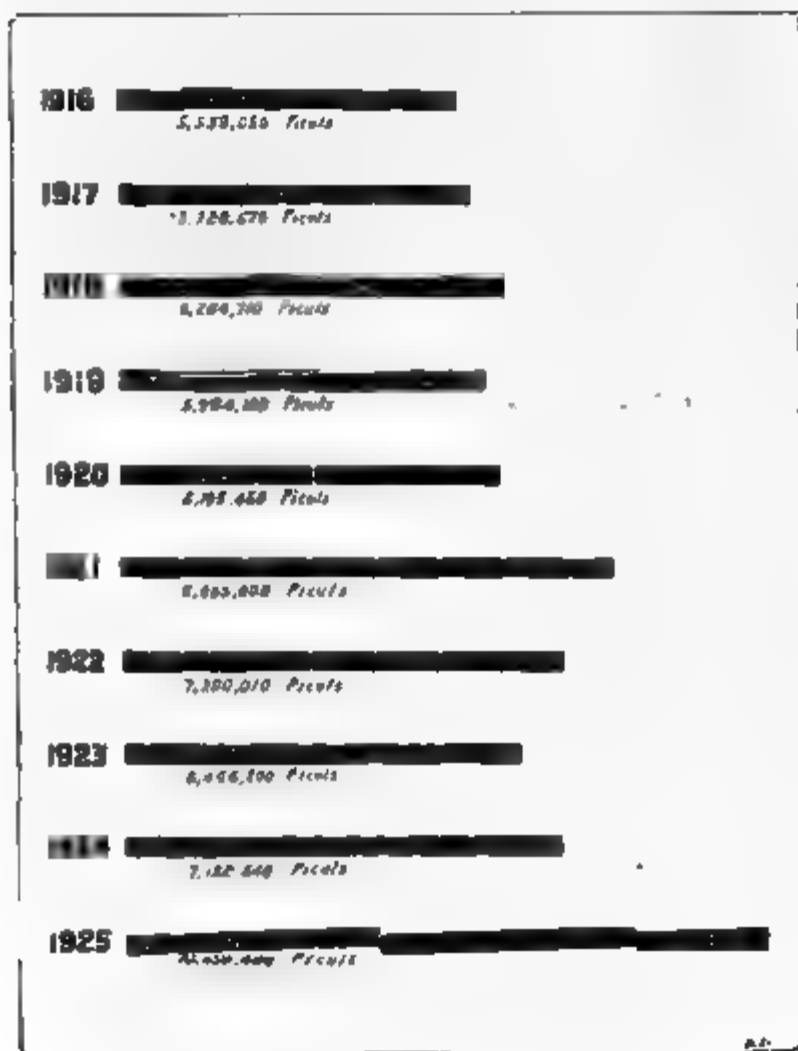
PALAY (ROUGH RICE)

Breaking the previous record crop of 1923 by 4 per cent, 1,726,500 hectares were planted to this staple during 1925 and the yield was 45,652,600 cavans of palay valued at ₹192,179,270 in the municipal markets.

This crop was 1 per cent smaller in area but 10 per cent larger in yield and 11 per cent greater in value than for 1924, when the corresponding figures were 1,787,910 hectares, 41,670,700 cavans and ₹172,957,290, respectively. It would



Graph showing production of ROUGH RICE (PALAY) in carves from 1916 to 1925



Graph showing production of SUGAR in tons from 1916 to 1925

have been still larger had it not been for the destruction of many seedlings by extraordinary floods during July and August, 1924, which seedlings could not be replaced because of shortage thereof in some cases and because of the unusual drought during September, in others. The rains of October and November, however, helped the damaged plantations considerably giving an increase in production, as stated above.

The average yield per hectare in 1925 was 26.46 cavans against 23.92 in 1924 or an increase of 11 per cent, and the average prices were ₱4.21 per cavan during 1925 and ₱4.16 in 1924. Of the total area planted, it is estimated that about 29 per cent was upland palay and 71 per cent, lowland; and the corresponding yields were 10,916,600 and 34,736,000 cavans, respectively.

Sulu, Masbate, Palawan, La Union, Nueva Vizcaya, Camarines Sur, Ilocos Norte, Rizal, Bataan, and Camarines Norte, registered increases of above 25 per cent over their production in 1924 while Batanes, Occidental Negros, and Antique had decreases of over 10 per cent of their last season's crop.

The rice producing provinces like Nueva Ecija, Pangasinan, Tarlac, Pampanga, and Bulacan registered also increases, their combined production during 1925 being 19,506,000 cavans of rough rice, against 17,578,260 cavans in 1924, or an increase of 11 per cent.

SUGAR CANE

With a total area slightly less than of that planted in 1921, the largest on record, the sugar crop of these Islands recorded this year the substantial increase of 32 per cent over the largest crop ever gathered before—that of 1921.

The area planted for 1925 was 239,470 hectares and gave 10,659,480 piculs of sugar, 521,030 piculs of panocha, 4,833,860 liters of molasses, and 4,315,210 liters of *basi*, all together valued at ₱112,729,900. Compared with the yield for 1924 when the area planted was 227,190 hectares and the production was 7,132,640 piculs of sugar, 456,100 piculs of panocha, 2,976,550 liters of molasses, and 3,880,570 liters of *basi*, valued altogether at ₱105,667,180. This shows a remarkable increase in a single year of 49 per cent in the production of sugar, 14 per cent in the production of panochas, 62 per cent in the production of molasses, and 11 per cent in the production of *basi*.

This increase was however registered mostly in the provinces where sugar centrals are established, for said provinces produced

in 1925, 54 per cent more than in 1924, while in the remaining provinces the increase was only 14 per cent.

There was also a notable increase in the average yield of sugar per hectare in the Philippine Islands in 1925 as compared with that for 1924. These averages were 47 and 33 piculs, respectively, or 42 per cent more. Here again it was only in the places in and around the sugar centrals, where the farmers averaged 58 piculs per hectare in 1925 against 38 piculs in 1924, that there was progress. In other places the average yield remained unchanged—around 21 piculs per hectare.

In spite of these increases there was only a slight advance in the total value of this crop, because of a considerable fall in prices. During the year 1925, the average prices were ₱11 per picul of centrifugal sugar; ₱7.35 per picul of muscovado; ₱8.39 per picul of panochas; ₱0.09 per liter of molasses; and ₱0.15 per liter of basi. The prices were ₱15.93 for centrifugal; ₱10.69 for muscovado, ₱9.50 for panochas; ₱0.14 for molasses; and ₱0.17 for basi, in 1924.

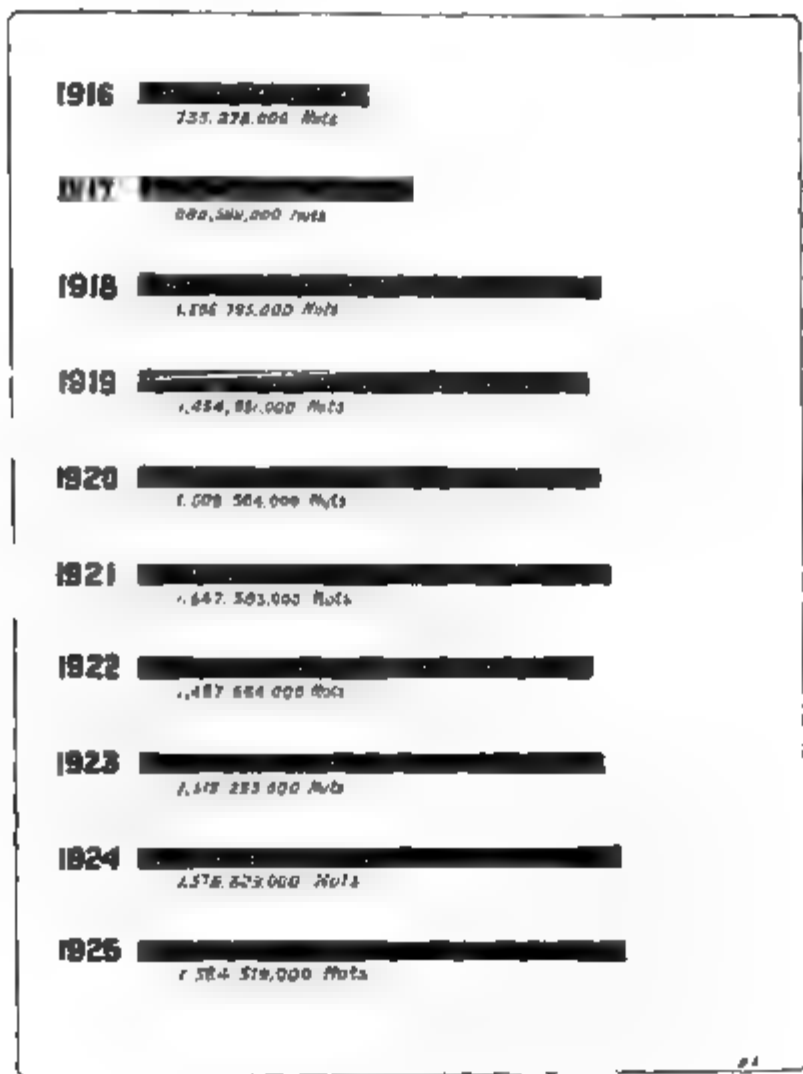
COCONUTS

During the year there were over 2,000,000 trees newly planted and the number of trees in bearing increased by 2,000,000 over those in 1924, whereby the production of nuts increased by .5 per cent but the yield of copra and tuba decreased by 5 and 24 per cent, respectively.

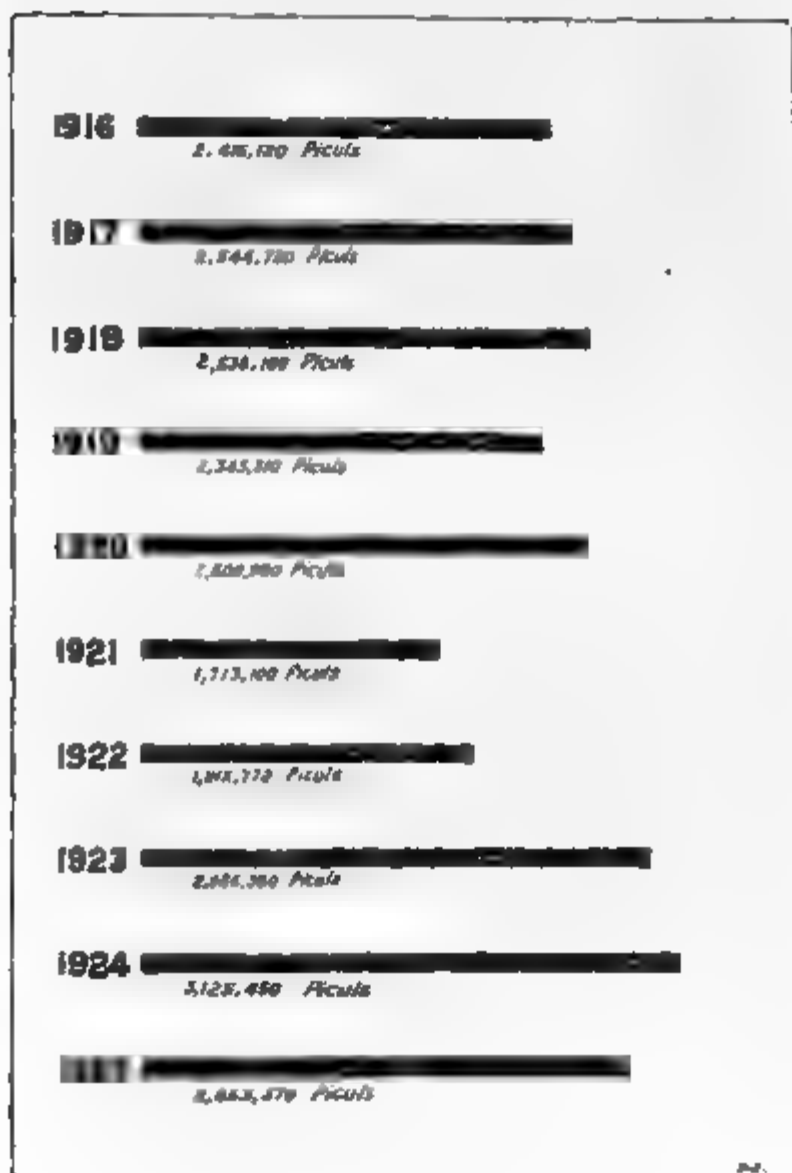
This is the result of the loss sustained by the groves last year on account of unfavorable weather and of pests and diseases, it being estimated that the former damaged 16 per cent of the total trees planted and the latter, 2 per cent.

The total number of trees for 1925 was 89,687,770, of which, 58,165,880 were in bearing, and 449,200 were used for the production of tuba, while the remainder were young trees. The corresponding figures for 1924 were 87,460,000, 51,154,600, and 540,460, respectively.

The total production was 1,584,519,000 nuts, of which about 110,678,000 were sold fresh for the table or were desiccated for exportation and the remainder turned into copra and coconut oil, yielding 5,728,800 piculs and 1,993,450 liters, respectively. With the exception of coconut oil, of which there was 7 per cent more than for 1924, the remaining products suffered reductions, especially *tuba*. The figures of production for 1924 were 1,576,629,000 nuts, which yielded 6,119,150 piculs of copra



Graph showing production of COCOONITE from 1916 to 1925



Graph showing production of NEMP (ABACA) in Piculs from 1916 to 1925

and 1,865,770 liters of oil and the remainder, or 45,588,000 nuts were sold fresh. The production of tuba was 87,252,230 liters in 1925 against 114,581,800 liters in 1924.

Coconut growers found, however, some compensation for their losses in production in the higher prices paid to them for their product. The prices for 1925 and 1924 were for copra, ₱10.47 and ₱9.39 per picul, for coconut oil, ₱0.43 and ₱0.41 per liter, for tuba ₱0.08 and ₱0.07 per liter, and for nuts, ₱3.46 and ₱3.57 per hundred. The total value of coconut products was ₱71,847,980 in 1925, against ₱68,134,370 in 1924, or 5 per cent increase.

ABACA

This crop also registered a reduction both in the total area planted to and in the production of fiber because of the extraordinary floods and typhoons during the preceding year. Not less than 25 per cent of the area planted then was damaged, and that caused a reduction of 8 per cent in the yield for 1925.

The area planted in 1925 was 477,110 hectares against 485,340 hectares in 1924. The corresponding productions were 2,853,570 and 3,125,450 piculs, respectively. There was, however, the big jump in prices of from ₱13.82 per picul in 1924 to ₱22.63 per picul in 1925, the planters thus receiving over ₱21,000,000 for a smaller crop this year than for a larger one the year before. The total value for 1925 was ₱64,296,240.

Leyte, Albay, and Samar, the provinces that lead in the production of abaca, suffered the greatest reductions, their combined yield in 1924 having been 1,671,370 piculs while this year they had only 1,269,280 or a loss of nearly 25 per cent.

CORN

Corn growers were particularly unfortunate this year, for they were not only unable to replant the areas destroyed and so had a smaller crop because of too much water at first and then too much drought, but they also got prices lower than those paid the year before.

The total area planted to corn during 1925 was 522,380 hectares and the yield was 7,606,110 cavans, which brought the farmers ₱30,767,250 at the rate of ₱4.04 per cavan. Compared with the results obtained in 1924, when the 533,230 hectares under cultivation gave 7,830,320 cavans worth ₱33,303,960, at ₱4.25 per cavan, the losses were 2 per cent

in the area planted, 3 per cent in the volume of the crop, 8 per cent in the total value, and 7 per cent in the price per cavan.

Bulacan, Zamboanga, Nueva Vizcaya, Pampanga, Laguna, Batanes, Masbata, Occidental Negros, and Palawan, suffered reduction ranging from 25 to 46 per cent as compared with the previous year's crop.

Practically the same area was planted to tobacco as in 1924, but the yield was 8 per cent smaller in 1925 because of unfavorable weather, being but 910,910 quintals of tobacco leaf as against 941,800 quintals the preceding year.

There was a rise of 83 centavos in the price per quintal, that is, from ₱12.22 the year before to ₱13.05 this year, and this made the value of both crops almost equal, for it was ₱11,505,420 in 1924 and ₱11,891,690 in 1925.

Among the leading tobacco-producing provinces, Cagayan, Cebu, and Isabela had the greatest decrease, their combined production having been only 459,010 quintals this year as against 510,970 the year preceding, or 10 per cent less. Ilocos Norte and Pangasinan, on the other hand, enlarged the combined area of their tobacco plantations by 14 per cent and their yield advanced 8 per cent. Together, they harvested this year 174,810 quintals and in 1924, 161,870.

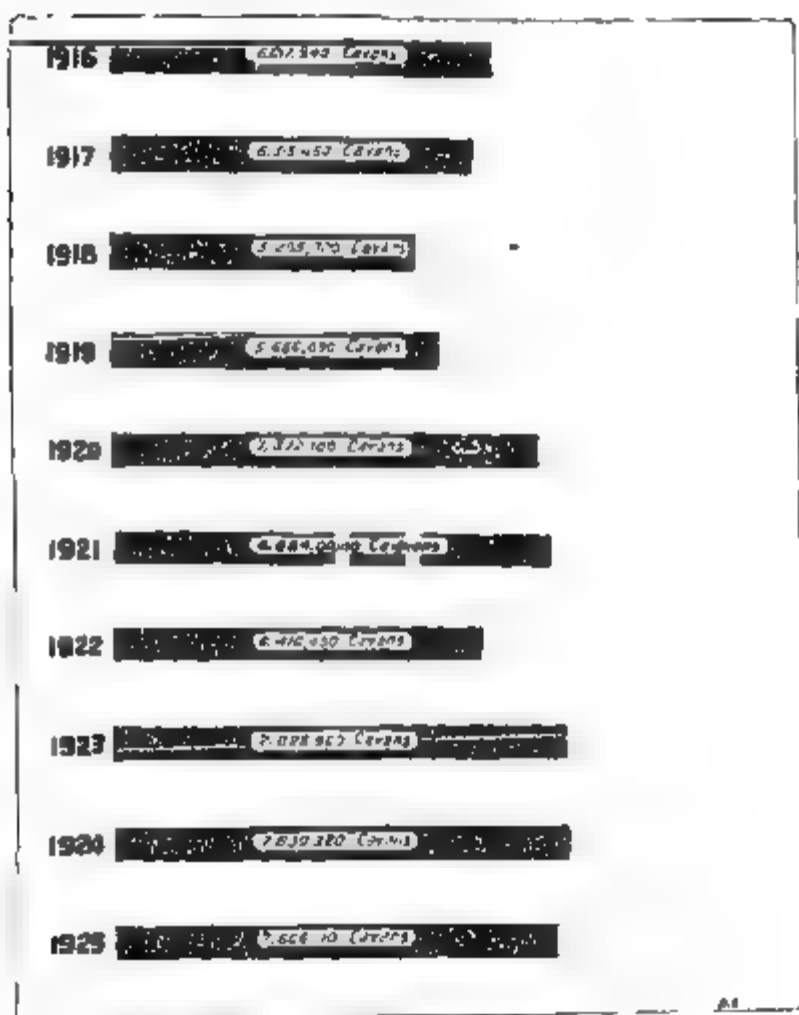
MAGNEY

The cultivation of this fiber is of late again attracting the interest of farmers, judging by the steady increase that the area planted thereto is registering every year. It is, however, confined to a few provinces, and these are principally the provinces where abaca is not cultivated.

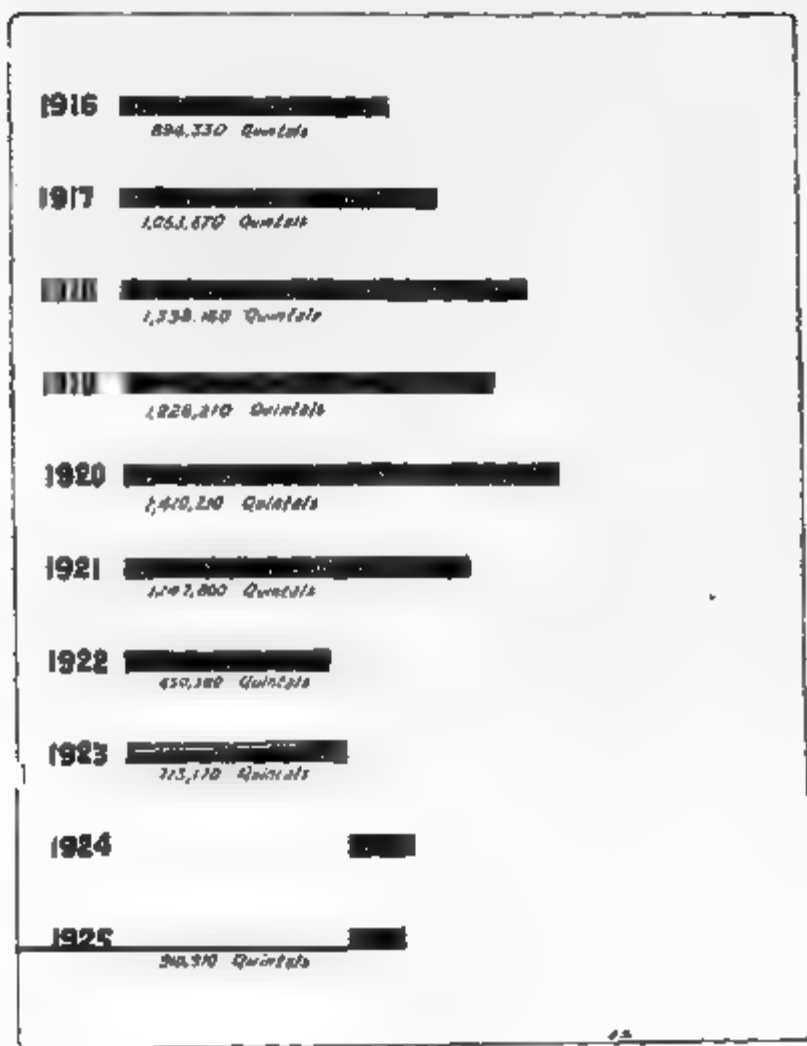
The area planted in 1925 was 81,100 hectares, or 6 per cent larger than that for 1924, and yielded 456,000 piculs of fiber. This yield was 3 per cent larger than that for 1924, which was 443,010 piculs, and the average price per picul rose so high that the total value of the crop jumped from ₱8,649,140 in 1924 to ₱5,682,530 in 1925, or 56 per cent.

CACAO AND COFFEE

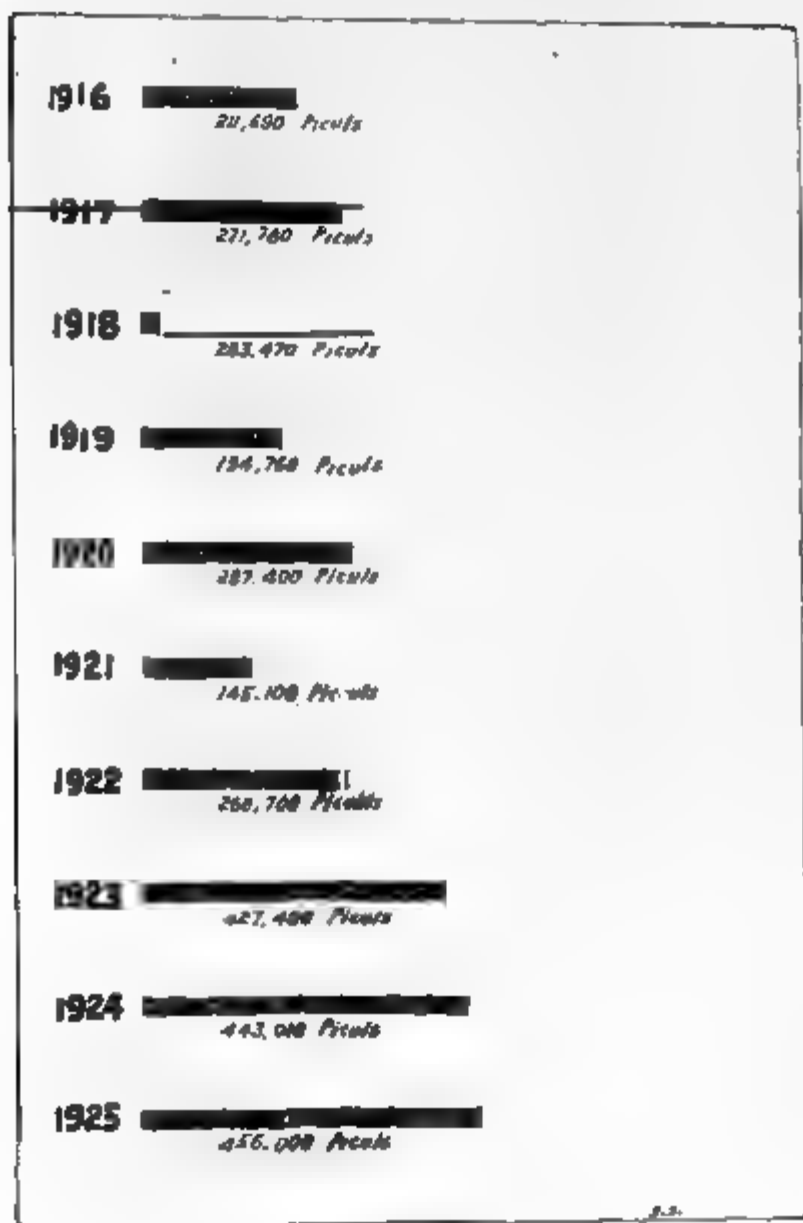
These two crops showed increases this year in the number of trees planted as well as in the respective production as compared with 1924. On June 30, 1925, there were 2,000,850 cacao trees, and 2,385,600 coffee trees and during said year the production was 1,111,900 and 1,178,200 kilos, respectively. Dur-



Graph showing production of CCHH in cents from 1916 to 1925



Graph showing production of TOBACCO in Quintals From 1916 to 1925



Graph showing production of HAZELNUT in pounds from 1916 to 1925

ing the year 1924, the production of cacao was 1,160,800 kilos and that of coffee 1,173,600 kilos, with 1,969,400 and 2,259,400 trees, respectively under cultivation.

The prices for these products are slightly but steadily rising every year due to the increasing consumption and the insufficient local supply. The prices paid during 1924 and 1925 were ₧1.40 and ₧1.70 per kilo for cacao and ₧0.69 and ₧0.71 per kilo for coffee, respectively. The values were ₧1,189,100 in 1925 against ₧1,206,600 in 1924 for cacao; and ₧836,300 in 1925 against ₧806,900 in 1924 for coffee.

LIVESTOCK

On account of the impossibility of completing the compilation of the data for the year 1925 in the short period elapsing between the end of the year and the date fixed for presenting this report, the figures for animals given here are one year behind, that is, they are for December 31, 1924.

There was a general increase in the number of all animals during the year 1924, notwithstanding the fact that the rate of birth of some kinds of animals registered decreases on account of the prevalence of diseases during the two preceding years.

The birth rate for carabaos fell 1 per cent, that for cattle, 3 per cent, horses and mules, .3 per cent; and hogs, 24.4 per cent; but for goats it increased 1.4 and for sheep 2 per cent.

As to diseases, there has been an improvement except as regards horses and goats. The rate of mortality for these animals increased by 5 and .1 per cent, but for carabaos, cattle, hogs, and goats, it decreased 4, .8, .4, and .3 per cent, respectively.

The meat consumption increased by fractions of one per cent for carabaos and sheep, remained the same for cattle and horses and decreased for hogs 4 per cent and .2 for goats.

GENERAL ADMINISTRATION

Important changes during the year.—The Accounting and Property Division was divided on January 1, 1925, into two divisional units known as the Accounting Division and Property Division.

Changes in personnel.—On February 16, 1925, General Adriano Hernandez, who had been since July 1916 Director of Agriculture, died, and the undersigned was appointed Acting Director effective as of January 2, 1925, and on November 10, 1925, *ad interim* Director of Agriculture.

Other important changes in the personnel during the year were as follows: Mr. Jose S. Camus, acting chief, Agricultural Extension Division, was appointed inspector at large. Mr. Mariano Billedo was reassigned to the work pertaining to the chief of the Agricultural Extension Division; Dr. Vicente Ferriz, assistant chief, Veterinary Division, was designated acting chief veterinarian; and Mr. P. J. Westar, horticulturist, resigned.

ADMINISTRATIVE DIVISION

Activities.—This division records all official correspondences received and sent by the Bureau; keeps the civil service records of the personnel; maintains a stenographic service and a transportation service for the Bureau; make disbursements and collections; and has charge of the Central Office Building and the general administrative work.

Personnel.—The following table (III) shows the changes made in the personnel of the different divisions during the year:

TABLE III.—Personnel for the year 1923

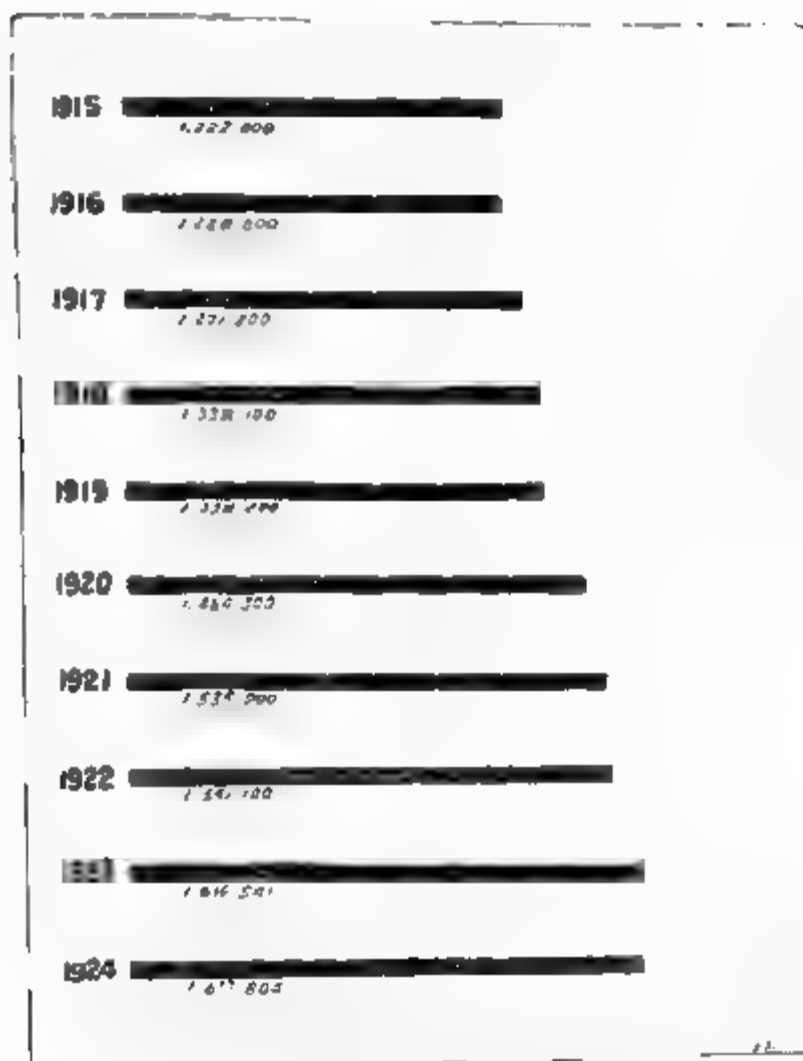
Division	Employees at the beginning of the year	Appointed during the year	Reassigned during the year	Employees at the end of the year
Administrative	61	6	3	64
Agricultural Extension	60	6	3	63
Accounting	17	4	3	20
Animal Husbandry	15	1	1	15
Fiber	24	3	10	17
Food Industry	34	6	4	36
Plant Protection	62	37	20	79
Publications	16	2	3	15
Property	32	1		33
Rural Credit	15	4	0	19
Statistics	24	12	10	26
Veterinary	165	121	43	243
Totals	500	213	107	606

* Included were mainly temporary emergency employees for the insect and plant diseases and anthrax and rinderpest campaigns.

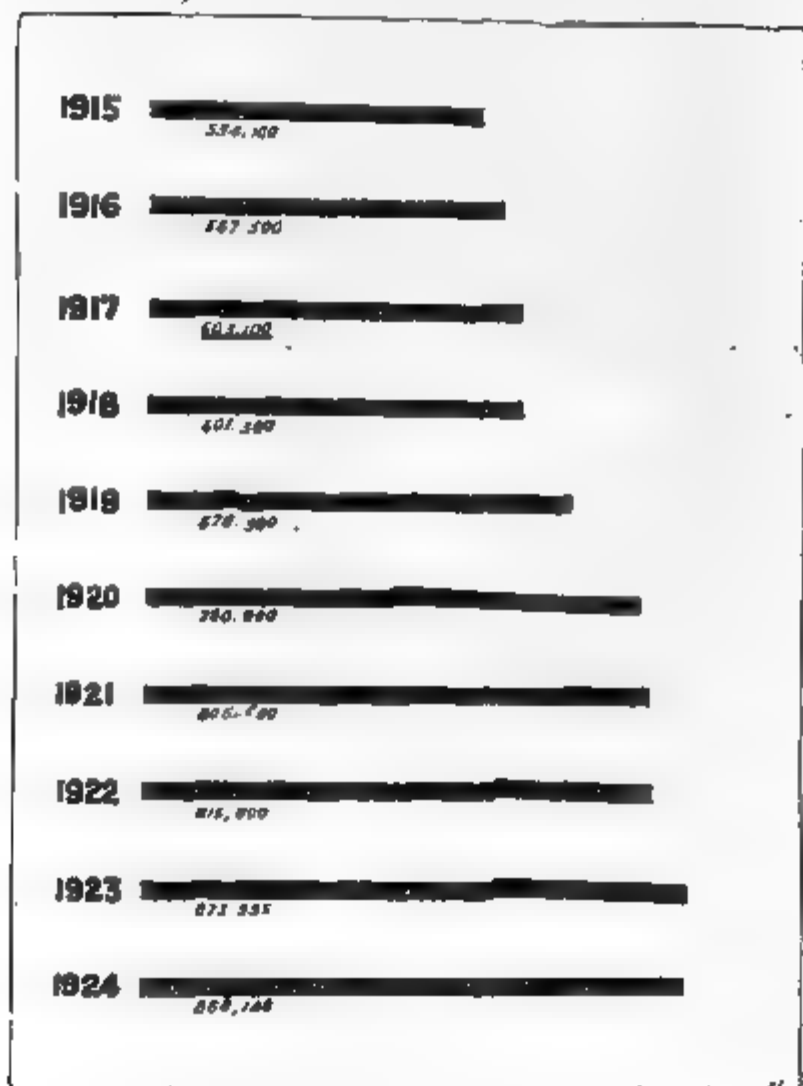
Land transportation.—This division is responsible for the operation, maintenance and upkeep of the land transportation equipment of the Bureau of Agriculture. We have at present 6 carromatas, 4 carretelas, 1 automobile, and 2 trucks.

The appointment of a mechanic greatly facilitated the repairing of the car, motorcycles and trucks of the Bureau.

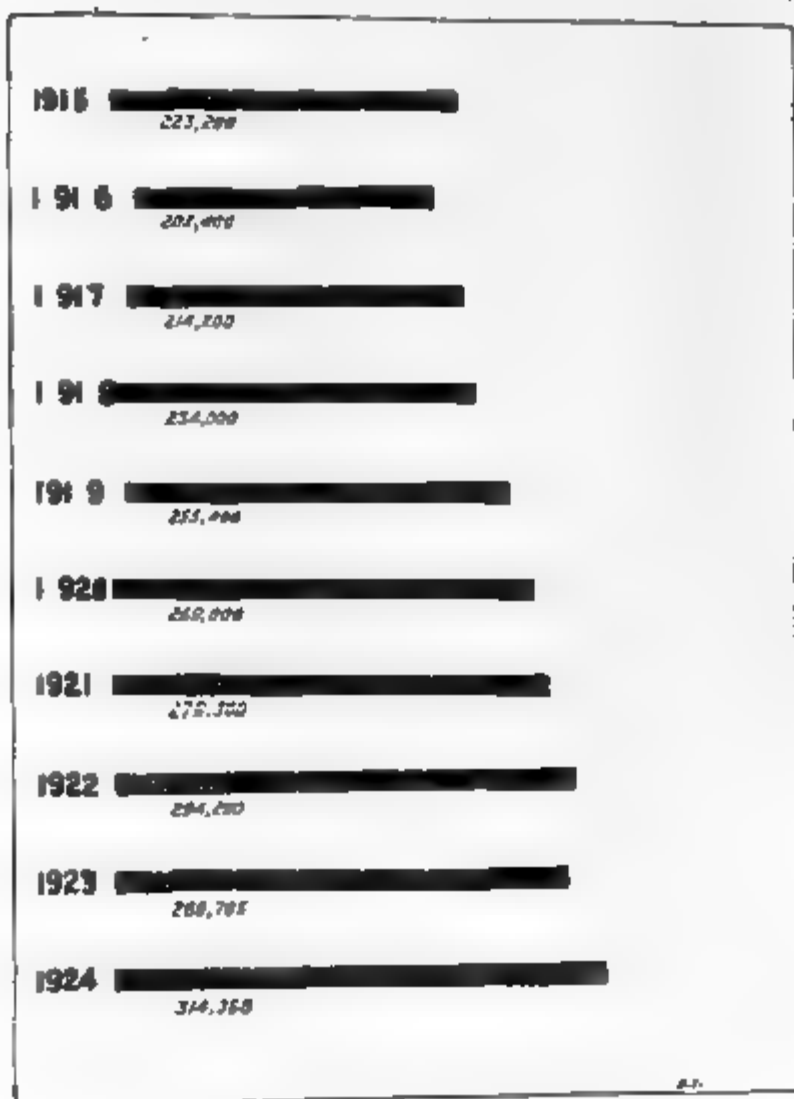
On January first we had six native ponies. During the year 7 horses were received, of which numbered 4 were purchased,



Graph showing number of CARABAO from 1915 to 1924




Graph showing number of CATTLE from 1915 to 1924



Graph showing number of HOPES from 1915 to 1924

1915 
2,521,100

1916 
2,734,800

1917 
2,810,700

1918 
2,894,400

1919 
3,129,700

1920 
3,639,200

1921 
4,477,000

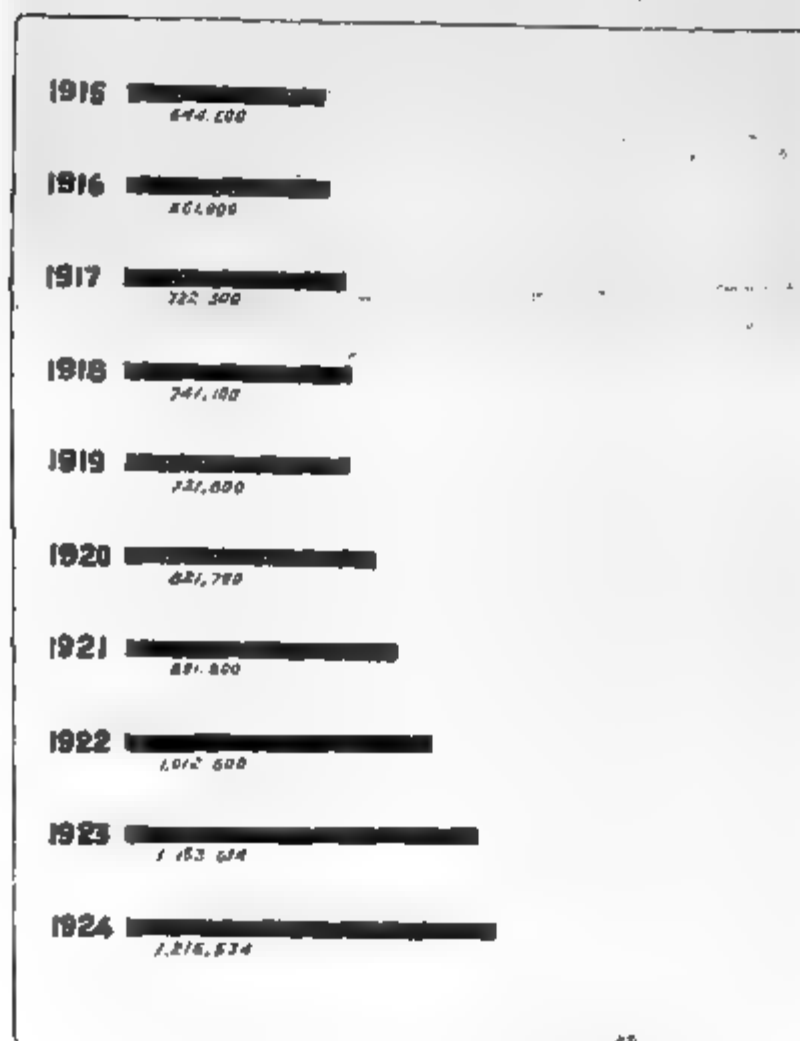
1922 
5,201,200

1923 
7,524,800

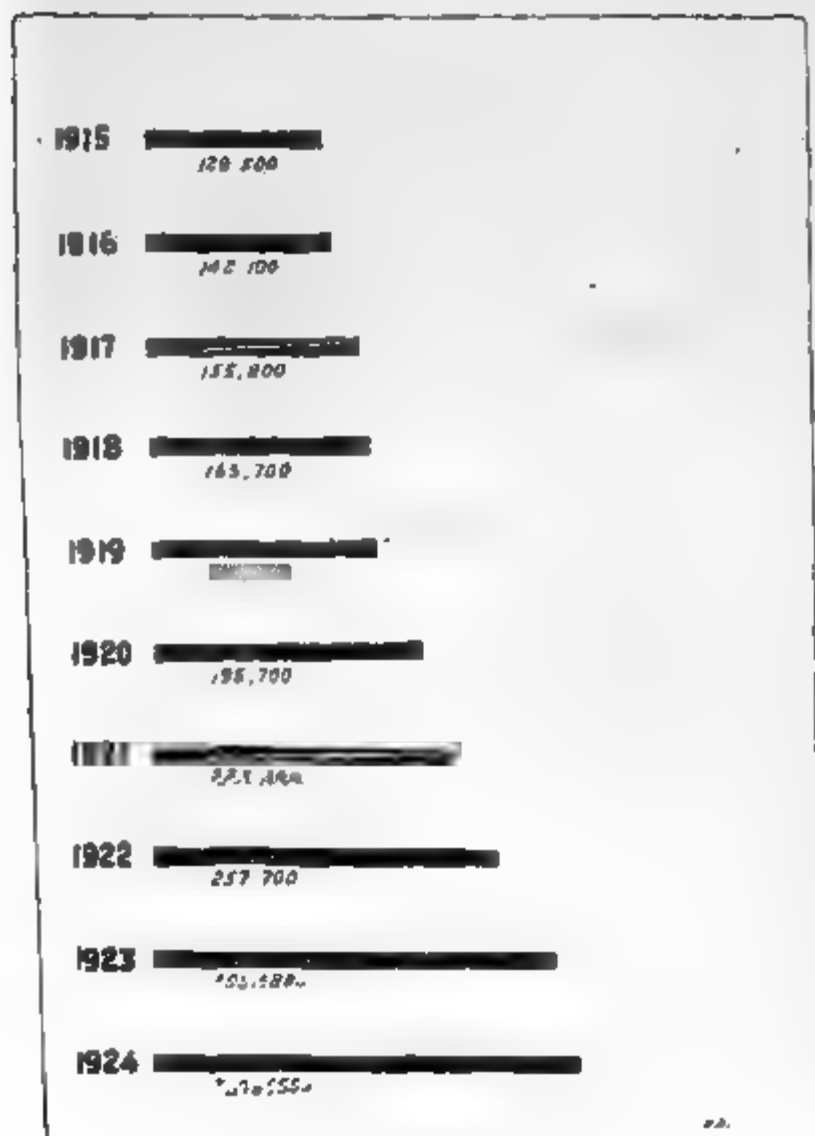
1924 
7,886,755

25

Graph showing number of HOGS from 1915 to 1924



Graph showing number of GOATS from 1915 to 1924



Graph showing number of BSEEP from 1915 to 1924

2 transferred free of charge from the Philippine Constabulary, and 1 received from the Cebu Breeding Station giving a total in all of 13 horses. Three horses died during the year and 1 was transferred to another station leaving 9 horses on hand at the end of the fiscal year. We still have two mules in the service.

Correspondence.—During the year there were 211,540 pieces of correspondence handled, 144,215 of which were letters sent and 67,325 letters received. There were also 8,572 letters delivered by messenger to different bureaus and offices in the City of Manila and 655 telegrams sent out during the period. One thousand thirty-two (1,032) of the letters received and 1,003 letters sent were registered.

ACCOUNTING DIVISION

The principal work of this division is auditing, classifying and paying all accounts including the salaries and traveling expenses of the field force, recording income, expenses, and all assets and liabilities as classified by the Insular Auditor and by the Bureau, keeping a project ledger-book, a record of the expenses and income of each of the different stations, keeping a job-book, a record of expenses in construction and repair projects chargeable against the public works Funds, keeping a record of the expenses chargeable against the Tobacco Inspection Fund under certain projects; collecting accounts in favor of the bureau; preparing monthly trial balances of expenses and income; preparing monthly statements of accounts receivable, accounts payable, advance and collection accounts; preparing weekly financial statements for funds appropriated under three special appropriations for the Bureau (Acts Nos. 3119, 3163, and 3168); preparing monthly statements of expenditures for the Department Secretary, the Director and for the chiefs of the divisions.

As in previous years rushed payments of accounts, especially the salaries and traveling expenses of the field force, were frequent during the year; and the practice of advancing funds to some of the field force to cover their traveling and incidental expenses was continued. The provincial treasurers also continued paying our men employed in the scouting parties, as this was found necessary for their prompt payment, from the funds appropriated for the scouting parties.

TABLE IV.—Comparative statement of expenditures and income,
1924 and 1925

Name \$	Year		Increase (+) Decrease (—)
	1924	1925	
EXPENDITURES			
Salaries	7428,907.33	7414,286.31	— 14,621.02
Wages	183,838.04	175,078.67	— 8,759.37
Traveling expenses of personnel	122,419.61	128,415.78	+ 5,996.17
Freight, express and delivery service	10,865.70	8,381.08	— 2,484.62
Postal, telephone, telegraph and cable service	19,099.07	19,633.99	+ 534.92
Illumination and power service	3,655.82	6,361.98	+ 2,706.16
Miscellaneous service	2,407.44	1,761.28	— 646.16
Rental of buildings and grounds	4,253.22	2,018.78	— 2,234.44
Consumption of supplies and materials	18,418.20	187,970.09	+ 169,551.89
Printing and binding reports, documents, and publications	17,592.89	34,711.23	+ 17,118.34
Contributions and grants	100,627.69	84,999.09	— 15,628.60
Maintenance and repair	11,481.80	6,551.92	— 4,929.88
Outlays (furniture and equipment)	25,036.51	6,640.25	— 18,396.26
Deterioration of sales and sales stock	—	366.28	+ 366.28
Extraordinary losses	516.48	270.74	— 245.74
Campaigns in the eradication of anthrax, Acts 3119 and 3151	190,634.28	97,585.05	— 93,049.23
Centennial repair and construction of corral etc., at the Slaughter Matadero and Quarantine Station, Act 3137	16,462.87	3,464.91	— 12,997.96
Organization of scouting party to locate and fight locusts, Act 3139	89,730.19	97,338.26	+ 7,608.07
Campaign against rinderpest and other contagious cattle diseases, Act 3166	—	70,214.71	+ 70,214.71
Total	1,625,222.56	1,394,164.72	— 231,057.84
INCOME			
Income from rentals	7,632.80	1,929.49	— 5,703.31
Service income	236,775.74	228,649.97	— 8,125.77
By miscellaneous sources	164,079.62	145,270.15	— 18,809.47
Total	398,488.17	365,779.47	— 32,708.70
Net Cost	1,226,734.39	1,028,385.25	— 198,349.14

Comparative statement of expenditures and income, special appropriation,
1924 and 1925

Items	Year		Increase (+) Decrease (—)
	1924	1925	
EXPENDITURES			
Mutual insurance of work animals, Acts 2573 and 2603.	\$617.50	\$22.66	— \$594.84
Total.	617.50	22.66	— 594.84
Income			
Mutual insurance of work animals, Acts 2573 and 2603 (premium)	152.00		152.00
Mutual insurance of work animals, Acts 2573 and 2603 (memberships fees).	5.00		5.00
Total.	157.00		157.00
Net Cost.	460.50	22.66	— 437.84

Statement of expenditures per capita

Year	Population	Expenditures	Expenditures per capita	Receipts	Receipts per capita
1900	7,326,474	\$181,742 06	\$24 823		
1910	10,316,150	21,065,649 56	2 102	2,071,001 30	2 005
1919	10,541,500	1,500,757 14	1 322	300,650 10	2 877
1920	10,794,730	1,400,067 02	1 297	327,407 10	3 027
1921	11,422,470	1,707,750 10	1 496	345,707 10	3 024
1922	11,794,677	1,850,117 37	1 568	306,630 61	2 613
1923	11,516,204	1,711,520 70	1 485	330,740 70	2 850
1924	11,927,001	1,825,722 65	1 533	350,001 17	2 932
1925	11,947,000	1,704,004 72	1 427	300,771 47	2 506

* Mexican currency, equal to P.25.

Statement of net expenditures per capita had the income realized and turned over to the Insular Treasury been available for expenditures

Year	Bureau of Agriculture expenditures	Receipts	Net expenditures	Population	Expenditures per capita
1900	\$181,742 06		\$181,742 06	7,326,474	\$24 823
1910	21,065,649 56	2,071,001 30	19,000,000 00	10,316,150	1 842
1919	1,500,757 14	300,650 10	1,199,107 04	10,541,500	1 138
1920	1,400,067 02	327,407 10	1,072,659 92	10,794,730	1 000
1921	1,707,750 10	345,707 10	1,362,043 00	11,422,470	1 192
1922	1,850,117 37	306,630 61	1,543,486 76	11,794,677	1 309
1923	1,711,520 70	330,740 70	1,380,779 00	11,516,204	1 198
1924	1,825,722 65	350,001 17	1,475,721 48	11,927,001	1 237
1925	1,704,004 72	300,771 47	1,403,233 25	11,947,000	1 174

* Mexican currency, equal to P.25.

PROPERTY DIVISION

ACTIVITIES

This division is the custodian of all Government property belonging to the Bureau of Agriculture and supervises all transactions in connection therewith and handles all the purchases of equipment, supplies and materials required by the different divisions of the Bureau in their varied activities in the office and in the field. The work of the division may be grouped under four headings, namely—

1. **PROPERTY ACCOUNTING** (the recording through the medium of ledger cards, invoice and memorandum receipts and property journals of the purchase, distribution and disposition of equipment)
2. **REPAIRS** (the acquisition and repairs of all property owned by the Bureau).
3. **RECEIVING AND SHIPPING** (the receiving, storing and packing for shipment of all equipment, supplies and materials required)
4. **TRUCK TRANSPORTATION** (the handling of all shipments made by and consigned to the Bureau whether insular or foreign and delivery of animals and plant materials distributed and sold by the Bureau in the city).

The rinderpest and locust campaigns conducted during the year added greatly to the regular work of the division as calling for the acquisition and shipment of the materials needed in same. Owing to the reduced appropriation of the Bureau for the purchase of equipment only the things that were considered the most essential for the work of the different divisions were acquired, special preference being given to agricultural implements and scientific apparatus.

The total property accountability of the Bureau of Agriculture as of December 31, 1925, was:

Fixed assets.....	\$1,255,586.22
Supplies and materials.....	5,454.86
Same stock (seeds and plant materials).....	1,729.93
Total.....	1,265,780.60

The routine work done by the division during the year is as follows:

Requisitions to Bureau of Supply and Printing.....	243
Direct orders (contract payment only).....	302
Work orders for repairs.....	208
Request for supplies and equipment.....	4,036
Shipping memoranda.....	6,111
Total.....	10,956

Shipments handled (insular and foreign)

	Number of shipments	Number of items	Weight in kilos	Value
Outgoing.....	1,737	1,147	221,849	\$28,267.85
Returning.....	435	3,087	124,301	37,475.41
Total.....	2,172	4,234	416,010	136,124.86

PLANT INDUSTRY DIVISION

ACTIVITIES

The activities of this division consist chiefly of plant investigational work.

CORN

Variety test (repeated).—The Calipus White, Calamba Yellow, Bohol White, Mestizo White, and Moro White were the highest yielders during the dry season at the Lamao Experiment Station, Lamao, Batan, giving 1,769.86 to 2,106.68 kilos of grains per hectare—while the Calipus White, Mestizo White, Calamba Yellow Calaylay White, and Moro White were the

heaviest yielders in the rainy-season test, yielding 3,920.83 to 4,904.17 kilos of ears per hectare.

Of the pop-corn varieties tested in Lamaso, the Golden Queen gave 761.05 kilos of grain per hectare, the Rice, 670.88 kilos; and the Plain, 667.11 kilos; in the dry season.

Planting-distance test (repeated).—In the planting-distance test at Lamaso, 1 by 0.3 meter with two plants per hill gave an average yield of 47.07 cavans per hectare, 1 by 0.5 meter, 35.12, cavans 1 by 0.7 meter, 31.5 cavans; 1 by 0.9 meter, 25.56 cavans; and 1 by 1 meter, 27.61 cavans.

FORAGE CROPS

Variety test (repeated).—In the comparative test at the Lamaso Experiment Station of forage grasses consisting of 12 species, the Napier, Marker, Uba cane, Guinea, "La Trinidad" and Guatemala gave the highest yields, producing 110,978.61 kilos, 91,992.22 kilos, 72,796.97 kilos, 69,706.65 kilos, 58,339.18 kilos, and 41,870.20 kilos of fodder per hectare, respectively.

Of the lowland grasses tested in Lamaso, the Balili, Bugalon, and Barit yielded 53,994.89 kilos, 52,003.83 kilos, and 51,208.60 kilos of fodder per hectare, respectively, when two years old.

At La Carlota Experiment Station only the Guinea grass, Para, Guatemala, and Napier were tested this year. The first two were heavy yielders while the last two did poorly.

Cutting test (repeated).—The age-of-cutting test was continued also at Lamaso with the cultures of the comparative test. The grasses were cut at intervals of 20, 30, 40, 45, 50, 60, 75, and 90 days. Heavier yields were obtained from the 50 and 90 days intervals than from the 20 and 45 days interval but the fodders were less palatable to animals because of the hard stalks and tough leaves. Fodder from all the grasses was very palatable to animals when cut in 20 and 45 days being tender and succulent.

Propagation at Lamaso of the best yielding forage grasses so as to have supplies for distribution purposes was continued this year.

LOWLAND RICE

Dry-season planting test (repeated).—In the comparative test of several rice varieties made at the Rosales Rice Experiment Station during the dry season this year, Sipot yielded 49 cavans per hectare, Binicol, 41; Pinursigui, 39; Ryuchu, 39; Sanglay, 36; Saigurot, 34.5; Inita, 34; Balibod, 32; Guinangan,

21.5; Mangasa, 37, and Lava, 37.5. At the Alabang Rice Experiment Station, Sipot proved to be superior, yielding 50.02 cavans per hectare against 34.51 cavans of Binicol, 32.32 cavans of Dinagat, 36.28 cavans of Mangasa; and 30 cavans of Mag-angle.

Variety test (repeated).—Of the varieties compared during the regular planting season in Rosales, Madaling Araw produced 32 cavans per hectare; Mangasa, 25 only. Madaling Araw proved quite resistant to drought. Among the nonbearded varieties that were not damaged by floods and drought at Rosales, Apostol gave 59 cavans per hectare, Sipot, 57, Calibo 1, 55; Cruz, 50; Malines, 48, Roxas, 41; and Minalabon, 40.

Fertilizer test (repeated).—Despite adverse conditions at Rosales, the complete fertilizer test showed that fertilization with carabao manure mixed with rice hull ashes applied 500 sacks to the hectare increased the yield per hectare by 6 cavans; that lime applied at 500 kilos gave 10.5; commercial guano, 11.5; bonemeal, 11.5; and copra cake, 15.5 cavans more per hectare. At Alabang three rates of application were tried—100, 150, and 200 kilos per hectare—of a fertilizer having 20 per cent nitrogen and the results obtained so far have shown that 150 and 200 kilo-applications are beneficial.

Submergence-depth experiment in rice irrigation (repeated).—A continuation of the experiment of the Alabang Rice Experiment Station at Alabang, Rizal, showed that there was no marked difference in grain yield between the plots under 9- or 12-centimeter submergence and those just kept moist, but that the yield of straw increased in direct ratio to the depth of submergence.

Submergence of rice weeds (repeated).—At the same station 7 common species were studied and it was found that a 12-centimeter submergence would stop their growth. One species, however, of the lily family, with a semifloating habit, thrives in both shallow and deep water.

Rice-hay test (repeated).—The rainy season crops from ten varieties used, which yielded an average of 2,012 kilos per hectare, averaged 490 kilos per hectare more than the yield from the dry-season crops.

UPLAND RICE

Variety test (repeated).—In the general variety test at the Lamoo Experiment Station, of the 66 varieties, Kinastila, May-

oro, Dinalla, Inantipolo, Binicol, Minantica II, Tapakoy, Tapuy, Burn, and Macaraning gave the highest yields, producing from 14.25 to 24.10 cavans, respectively. Of the 6 varieties tested in Alabang, the Madaling Araw was the best yielder, but the pedigree Kinastula and Kinampupoy produced high yields also.

Head-to-the-row test (repeated).—Kinastula in the head-to-the-row test at Lamao yielded the heaviest crop—37.37 to 44.77 cavans per hectare.

Seeding experiment.—The preliminary seeding experiment at Lamao indicated that the highest yield or an increase of about 150 per cent, could be obtained by planting only 3 to 4 seeds per hill, rather than many.

Seasonal planting test on upland rice.—The seasonal planting test showed that the best time to plant upland rice was May to August under Lamao conditions, as planting at other periods gave no yields without irrigation.

SUGAR CANE

Acclimatization test (continued).—Of the 105 varieties and strains tried at La Carlota Sugar Cane Experiment Station, La Carlota, Occidental Negros, only 33 were found desirable.

Variety test (repeated) (1924-1925).—At La Carlota the New Guinea 24-A produced 152.53 piculs of sugar per hectare; New Guinea 24-B, 123.99; Badilla, 121.42; Hawaii-109, 119.04; and Negros Purple, only 94.03 piculs.

Mulching test (repeated).—An increase of 68.2 per cent of sugar production was obtained in favor of the Negros Purple plot mulched with a commercial mulching paper at La Carlota.

Shallow and deep cultivation experiments (repeated).—Deep cultivation produced 100.75 tons of cane or 160.2 piculs of sugar per hectare against 82.45 tons of cane or 148.41 piculs of sugar following shallow cultivation with a cultivator, or a gain of 18.31 tons of cane, or 11.79 piculs of sugar. These figures are based upon the sugar content obtained in each case.

Green manuring test (repeated).—At La Carlota cowpeas or mongo plowed under while fruiting gave a higher yield of Negros Purple cane than when plowed under after fruiting, the increase being 26.54 and 22.27 kilos, respectively.

Fertilizer tests (repeated).—At La Carlota the sugar-cane plot limed and given a complete fertilizer yielded 122.10 piculs of sugar against 110.6 piculs from a plot fertilized with ammonium sulphate and against 70.51 kilos from the control plot, gains of 51.59 and 39.99 piculs, respectively.

TOBACCO

Seed testing (repeated)—At the Ilagan Tobacco Experiment Station, Ilagan, Isabela, there was found to be a difference of almost 200 per cent germination between light and heavy seeds in favor of the latter. The bigger native varieties showed a 33½ per cent higher germination than the smaller exotic varieties. The 10-Repollo, 11-Espada, 12-Pampano No. 1, 6-Pampano No. 2, 18-Florida Sumatra, 15-Romero, 47-Baker's Sumatra, 36-Bahia, 63-Havana and 40-S. P. No. 2, were used.

Standardization of varieties and strains.—The original stock of 11 varieties and strains of Ilagan has been reduced for convenience sake to 8: 12-Pampano No. 1, 17-Pampano No. 3, 6-Pampano No. 2, 51-Pampano No. 4, 11-Espada, 10-Repollo, 52-Viscaya, and 15-Romero. Notwithstanding adverse weather conditions, the characters statistically studied showed fair means, standard deviation, and coefficient of variability. Only the heights of the plants varied. The 12-Pampano No. 1 and 6-Pampano No. 2 gave the broadest leaves and the best yield, the 11-Espada the narrowest leaves and 10-Repollo, medium leaves, the 52-Viscaya and 15-Romero produced aromatic leaves, and the 17-Pampano No. 3 and 51-Pampano No. 4 were not heavy yielders but had the finer veins of the native varieties.

Wrapper variety test (repeated)—For this experiment at Ilagan the 47-Baker's Sumatra, 18-Florida Sumatra, 40-S. P. No. 2, 63-Havanensis, and 43-S. P. No. 2 were used. The varieties all came out true to type, yielding 27.2, 47.0, 24.8, 27.7 and 24.7 quintals per hectare respectively.

Pedigree plant selection test (repeated)—One thousand eighty-seven (1,387) pedigree selections were made representing 14 varieties and strains.

Physiology of priming time.—Indications were observed pointing to the successful production of light glossy leaves by priming a little before the ordinary maturity stage of the leaves.

Artificial mulching experiment.—In a preliminary test the plot mulched with a commercial paper-mulch produced 1.15 farcos more per hectare than the unmulched plots and under unfavorable weather conditions.

Planting distance test (repeated)—At the Sarunayan Tobacco Experiment Station at Sarunayan, Cotabato, it was found that the best distances for spacing Sumatra strains and small-leaved varieties was 80 by 40 centimeters and for hybrid strains and large-leaved varieties, 90 by 50 centimeters.



Passiflora ligularis growing under shade (California Valley) - 1900

In the off-season planting of wrapper tobacco at Sarunayan 400 square meters of land were planted with Baker's Sumatra which yielded 244 kilos or 601 kilos (calculated) per hectare of fine and good-colored leaves, and a similar area planted with Bx-hybrid produced 30.6 kilos or 740 kilos (calculated) per hectare of fine, elastic and good-colored leaves. Due to inadequate preparation of the land, which had been a cogonal, and to the late planting at Sarunayan the yield per hectare of the crop harvested was naturally low.

ABACA

Variety test (continued).—Of the varieties tested at the Guinobatan Abaca Experiment Station at Guinobatan, Albay, the Tangongon made the most growth, or a 297 per cent increase in height in 1 year, and the Lauzagon, Maguindanao and Canorajan followed with 261, 205, and 182, per cent respectively. As to stooling, the Lauzagon was at the top with 111 average number of stalks per hill; the Bangulanon, 8.1; Maguindanao, 5.4; Samina, 4.8; Puti Tomatagacan, 4.4; and Bulao, 4.2.

Shading experiment (continued).—The plants in the plot exposed to the sun at Guinobatan uniformly showed less growth than those in the shaded plot.

Mulching experiment (continued).—Mulching with dry leaves of abaca and abaca waste, in Guinobatan, gave a slight increase in the average number of stalks produced per hill, after ten months.

Planting experiment—Rootstocks vs. Suckers (continued).—It was noticed in Guinobatan that while the plants from suckers were higher by 0.28 meter on the average, those from rootstocks had an average of one stalk more per hill.

Tensile strength of abaca fiber.—It was found in a final test that the longer the fiber remained in the shale after stripping, the less the tensile strength became.

Yield test of abaca per hectare.—A preliminary investigation showed that the present average plantation containing several varieties of abaca in Albay gave a total yield of 127.3 kilos of J2 fiber per hectare for one harvest, or about 509 kilos of fiber per hectare per year.

AGAVES

Retting test of maguey (repeated).—At the Linao Experiment Station at Linao, Bataan, 229 leaves of maguey weighing 72 kilos gave 1.16 kilos or air-dried fiber or 1.6 per cent with an average length of 1.0 meter. It took 4 days to ret these

in salt water, 7 days in salt water and fresh water (alternating) and 11 days in the mud.

COTTON

Variety test (repeated).—The 1924-25 variety test in Lamao resulted as follows: (1) Trica, (2) Kinastila, (3) Ferguson, (4) Cambodia, and (5) Toquillo, yielding respectively from 594.82 to 119.64 kilos of lint per hectare.

Planting distance test (repeated).—The distance of planting varies with the variety. Kinastila planted at 1 by 1 meter yielded 209.15 kilos of lint per hectare while at 1 by 0.9 meter, 1 by 0.8 meter, and 1 by 0.7 meter it yielded 270.04, 71.94, and 48.27 kilos, respectively.

Seasonal planting test (continued).—The seasonal planting at Lamao showed that the best time for planting cotton is from September to October.

KAPOK

The two-year old trees fruited for the first time with 34 pods the highest number of pods per tree under Lamao conditions.

Planting cuttings of kapok showed the best size for the purpose was 10 feet long and 5 inches in diameter, which gave 100 per cent success.

MISCELLANEOUS FIBER PLANTS

The newly introduced fiber plants, consisting of Balsa, *Ochroma lagopus*; Pochote, *Ceiba asculifolia*; Pita floja, *Ananas macrodentes*; and Javanese kapok, *Ceiba pentandra*, are doing well under Lamao climatic conditions.

OTHER AGRONOMIC CROPS

Variety test of peanuts (repeated).—Of the 14 varieties tested again at Lamao the Spanish yielded an average of 1,006.78 kilos of unshelled nuts; San Jose No. 11, 1,004.58 kilos, Tennessee Red, 933.77 kilos; San Jose No. 2, 890.42 kilos; and Zamboles, 818.79 kilos per hectare.

Variety test of cowpeas (repeated).—At Lamao the New Era P. I. No. 7911 yielded 636.52 kilos per hectare and New Era P. I. No. 8843, 584.35 kilos. These are the best yielders of the six varieties of cowpeas tested.

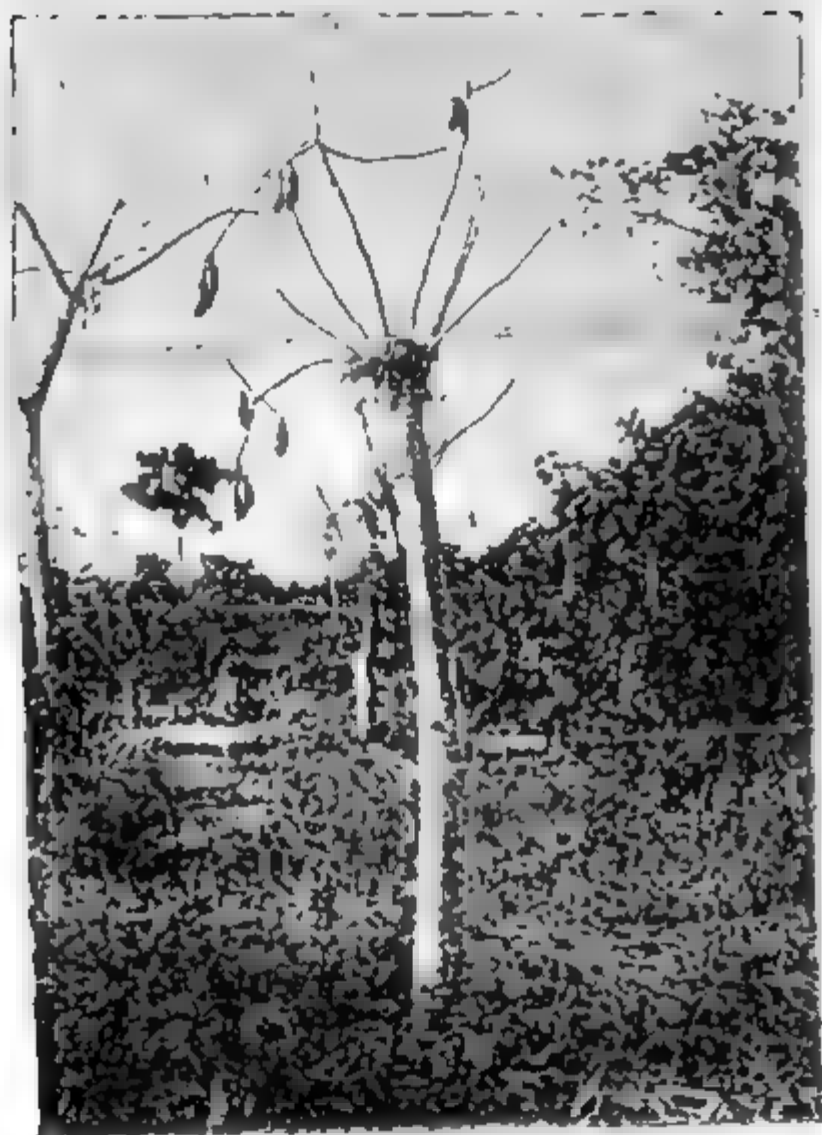
Variety test adlay (repeated).—Of the 14 varieties tested at Lamao, La Union Red, Mountain Province, Momungan, Batangas, and Lamao White proved to be the highest yielders, giving 289.78, 260.20, 249.96, 218.19, and 171.63 kilos of grain per hectare, respectively.



A view of the structure shown in Plate III, taken from the opposite side of the road, showing the corrugated metal roof and the surrounding vegetation.



View from 6 miles west of station with West, Lagoon, and station



Red maple, Lake Umbagog, Maine

Yield test of sorghum (continued).—The Basco sorghum yielded 450 kilos per hectare.

CITRUS

Variety test (continued).—At the Lamao Experiment Station three varieties of limes were high yielders (Tahiti, P. I. No. 5163—172 fruits per tree; Everglade, P. I. No. 3669—122 fruits, and Lime, P. I. No. 5176—98 fruits); one of lemon (Lisbon, P. I. No. 708—80 fruits); three of pomelos (Triumph grapefruit, P. I. No. 1632—139 fruits; Siamese seedless, P. I. No. 3673—98 fruits; Siamese seedless, P. I. No. 3442—20 fruits), two of mandarin (Kishiu, P. I. No. 1271—500 fruits; 'Hay, P. I. No. 5139—38 fruits); and six oranges (Pineapple, P. I. No. 1635—335 fruits; Balanga, P. I. No. 3650—319 fruits; White Siletta, P. I. No. 1715—227 fruits; Carleton, P. I. No. 4124—119 fruits; Ruby, P. I. No. 1639—114 fruits, and Excelsior, P. I. No. 1260—96 fruits) At the Tanauan Citrus Experiment Station at Tanauan, Batangas, 10 varieties of oranges, 4 of lemons, 6 of pomelos and grapefruit, and 2 of limes are promising.

Forced fruiting test (repeated) —Smudging and etherization had no apparent effect upon the fruitless and shy-bearing trees at Lamao.

Cover-crop and mulching test (continued) —In Tanauan the continuous cover-cropping with *Tephrosia candida*, (pil-pil) and cacaoate gave the best results; and in Lamao Bontoc lima and Lamao lima, black scab, seguidillas, soy beans, kibal and cow-peas gave the best results in the order of their enumeration.

Rice straw, dry cogon, and grasses were the most satisfactory mulches for citrus trees in Lamao.

Rejuvenation experiment (continued).—In Lamao it was again found that the calamondin and sour orange were good stocks for bridge-grafting; and in Tanauan the Santa Cruz mandarin, Sampson tangelo, Zinkom mandarin, Chinese mandarin, Siamese seedless pomelo, March seedless and Royal grapefruits were advantageously used in topworking old and otherwise weak mandarin trees.

Storage experiment (repeated).—In Tanauan 72 per cent of the fruits of the Sampson tangelo (without disinfectant) and 64 per cent (with disinfectant) kept in an underground chamber remained juicy and of a good color and excellent flavor for eleven weeks. Of the mandarins stored, the untreated fruits kept decidedly better.

COFFEE AND CACAO

Fertilizer test (continued).—In the fertilizer test of Excelsa coffee at the Lamao Experiment Station, the following mixtures per tree gave the best results; (1) guano 0.89 kilo, potassium sulphate 0.18 kilo, and bone meal 0.39 kilo; (2) dried blood 0.32 kilo, potassium sulphate 0.18 kilo, and bone meal 0.39 kilo, and (3) dried blood 0.5 kilo, potassium sulphate 0.48 kilo, and acid phosphate 0.48 kilo. The average yield per tree for each combination was 3.20 kilos, 2.2 kilos, and 2.0 kilos of clean coffee, respectively.

Irrigation test (continued).—In the irrigation test, the amounts of water used from 10 to 50 gallons per tree applied twice a month were not sufficient to maintain the trees during the dry months at Lamao. The foliage wilted for lack of sufficient water.

Comparative variety test (continued).—Liberian coffee gave the highest yield—1,533.13 kilos of clean coffee per hectare, and Excelsa coffee was second with 1,497.62 kilos in the comparative test.

Variety study (continued).—A study of the berries of the different varieties of coffee was made at Lamao and two types of Liberian and six types of Excelsa coffee were again observed.

Beverage test.—Since they are used for that purpose to some extent, the drinking qualities of different ages of leaves of Excelsa and Liberian coffee were tested but it was found that they had a disagreeable taste.

Cup test.—Of the coffee berries the Liberian (big-type berries) made the best coffee, the Robusta next, while the Excelsa (small-type berries) came third, the Canephora fourth, the Liberian (small-type berries) fifth, and the Congensis sixth.

Forced fruiting test.—The etherization and smudging of coffee trees to force them to fruit had no effect.

Hybridization test (continued).—The Liberian, Excelsa, and Robusta coffees were hybridized with each other to produce hardy and superior strains.

Viability test.—Fresh coffee seeds, submerged in water, kept their vitality for a month.

Cacao variety test (continued).—There are 285 young cacao plants of six varieties, growing at Lamao.

MANGOES

Vegetative propagation test.—A successful method of propagating the mango vegetatively lately tried at the Lamao Ex-



FIG. 22. *Yucca elata* (Joshua Tree) - *Yucca elata* (Joshua Tree)

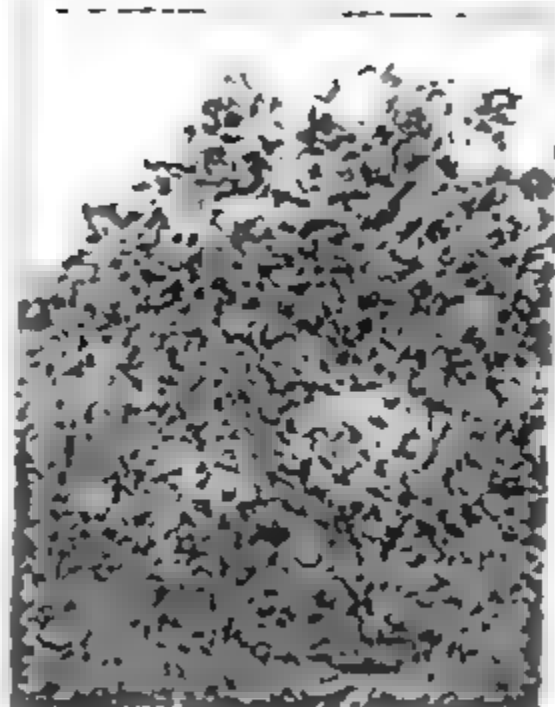


FIG. 23. *Yucca elata* (Joshua Tree) - *Yucca elata* (Joshua Tree)

periment Station is side-grafting, which is akin to inarching or bottle-grafting. In this method, the lower part of the scion is inserted in a pot of soil and the upper part covered with damp moss.

Forced fruiting test (continued).—By smudging at Lamao, mango tree No. 31 yielded 1,200 fruits; No. 30, 120 fruits; No. 103, 386; No. 5, 425; and an unnumbered tree, 128

FERTILIZERS

Fertilizer test (continued). Of the three mixtures of fertilizers tried the best combination was found to be one containing copra meal, potassium sulphate, and bone meal, applied at the rate of 482.55 kilos per hectare. The plots thus treated gave a yield of 25,962.42 kilos of fruits.

The fertilizers were applied two months before the flowering periods. The yield was taken from first fruiting season plants only and was then a partial production due to fertilization.

Mulching test (repeated).—The use of rice straw, commercial mulch-paper, grasses, and cogon for soil mulches to conserve moisture and check the growth of weeds, and thus minimize the cost of cultivation, showed the superiority of the above materials in the order named as to vigor of the plants mulched.

Comparative test of root crops (repeated).—The highest yielding sweet potato variety was Hawaii No. 1, which gave 10,190.76 kilos of tubers per hectare in a test of 36 varieties; of cassava, variety unknown No. 1, gave a yield of 58,833 kilos per hectare in a test of 30 varieties; and of Yautia a variety unknown (black stem), 23,571 kilos per hectare.

VEGETABLES

Cabbage variety test (repeated).—Nineteen varieties were tested under the soil and climatic conditions of Lamao, but seven varieties were destroyed by insects. The varieties that gave good yields were the Glory Enkhuizen, which produced 46,560.91 kilos; the Stain Early Flat Dutch, 30,482.14 kilos; the All Season, 10,569.64 kilos; and the Premium Large Late Flat Dutch, 10,182.14 kilos. These yields were estimated on the hectare basis and a 100 per cent stand.

Pepper variety test (repeated).—Of the seven varieties tested at Lamao the Crimson Giant yielded 6,195.87 kilos per hectare; the Sweet Spanish, 5,653.70 kilos. Pimento, 4,814.00 kilos;

Golden Bell, 4,691.83 kilos; the Anaheim Chili, 4,130.87; the Large Bell, 2,454.89; and the Cayenne, 1,164.09.

MISCELLANEOUS HORTICULTURE

Papaya-papain extraction (repeated).—Experiments on papaya fruit-sap extraction for papain at the Lamaso Experiment Station showed that a greater quantity can be extracted in the morning than in the afternoon and the quantity decreases with every extraction after the first. The average weight of dried "sap" per fruit was 0.2–1.1 grams.

The average production of good-sized fruit before the tree dies in Lamaso is: Round Solo, 117 fruits, Pointed Variety, 102; and Hawaiian, 89.

AVOCADO

Acclimatization test (continued).—One hundred and seventy budded as well as seedling trees of 33 varieties or strains are growing in the orchards at Lamaso. Of these only 14 varieties are fruiting. Among the fruiting varieties the Pollock and Commodore were the most productive. They produced 88 and 70 fruits per tree this season, respectively. Of these 33 plants were set out this year.

Preservation test (repeated).—In the preservation of avocado fruits at Lamaso with shellac after dipping them in 4 per cent formaline solution, all the fruits lasted only 18 days, except one which was coated with shellac three times. The Cardinal proved of better keeping quality in all conditions even under control.

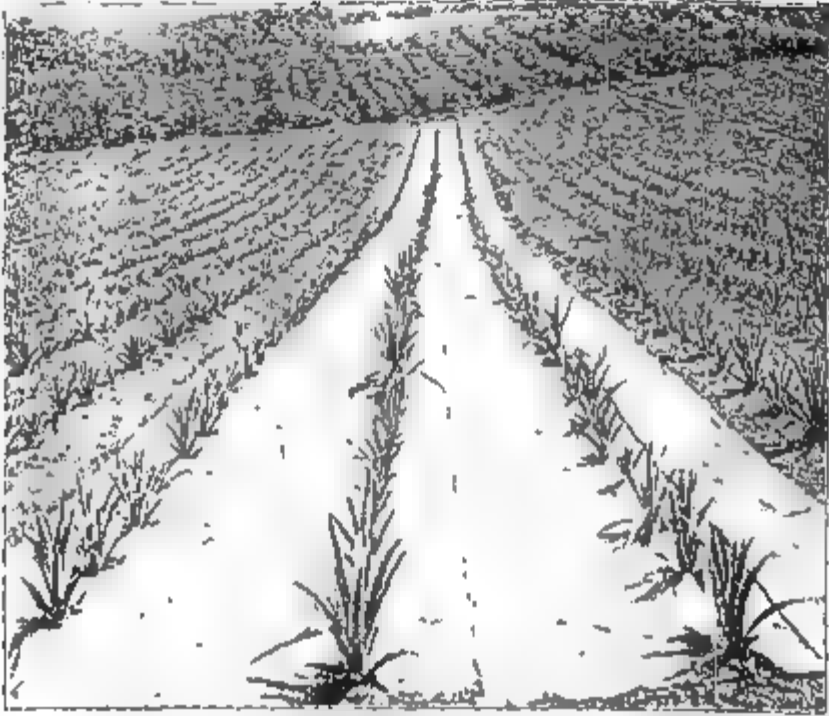
Forced fruiting test (repeated).—Attempts to force the avocado to fruit at Lamaso by smudging and by girdling the branches had no results.

BANANAS

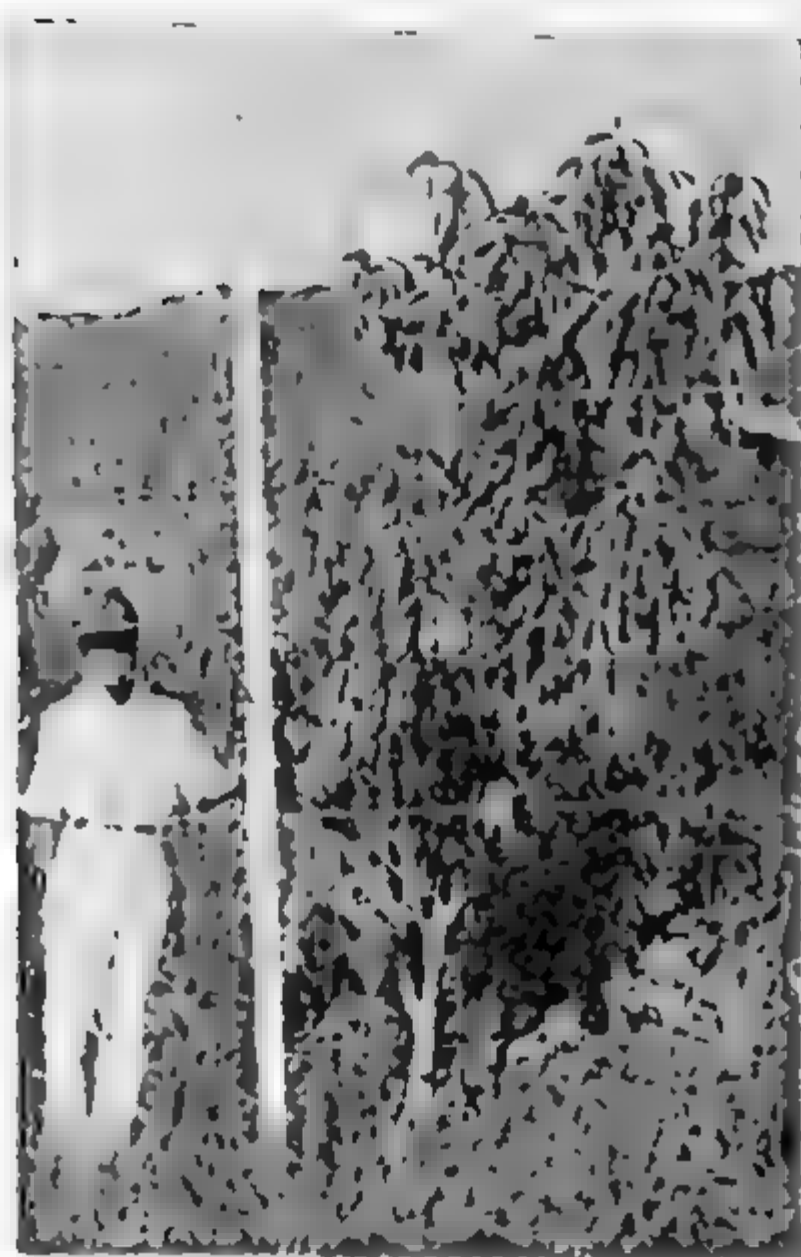
Emasculating test.—In an experiment at the Lamaso Experiment Station on the relation of the male flowers to the ripening of fruits, it was found that by cutting off the male flowers after pollination, the ripening of fruits was hastened by 2 to 9 days and the size increased somewhat, as observed in the varieties Katali and Toybok.

REMAS

Individual performance test (continued).—The old trees yielded each from 60 to 396 fruits this year, while the young ones fruiting for the first time, from 1 to 126 fruits.



Field water used at night for irrigation. Lower California Station



Leaf showing typical growth of *Phoma* *carolinensis* infection

MISCELLANEOUS TROPICAL FRUITS

Acclimatization test (continued).—There are four orchards of miscellaneous tropical trees representing 220 species, 305 varieties and 2,055 trees at Lamao. The *Macadamia* sp. and *Meculea platyphus* fruited for the first time this year.

Acclimatization of semitemperate fruit and nut trees (continued)—The varieties of apples which fruited this year in the Bontoc Acclimatization Station, Bontoc, Mountain Province, were the Analin, and 10 trees grown from cuttings from a variety found in the Mountain Province. The peach trees flowered for the first time this year. The other temperate plants are too small yet to come into bearing.

The chayote, *Sechium edule*, succeeded well in Bontoc. The yield was 235 fruits (about 59 kilos) per plant. As a vegetable food the chayote is gaining popularity being considered far superior to upo, *Lagenaria leucantha*.

MISCELLANEOUS COÖPERATIVE EXPERIMENTAL WORK

The division had 2,018 coöperators this year experimenting on agronomic, fiber, and horticultural plants as against 897 in 1924.

Farm machinery and implement investigations.—In testing the Cletrac and Fordson tractors this year using a 3-bottom Oliver plow and a single-bottom gang plow, respectively over level, moist sandy loam land previously planted to corn, the total estimated cost of plowing and harrowing per hectare was ₱30 and ₱25, respectively. This test was made in Cotabato, Cotabato, and Paranaque, Rizal, respectively.

Irrigation.—It was found on the Santa Barbara irrigation project land in Iloilo, that the majority of the farmers favor the raising of only one crop a year. It was claimed that the combined yield of two crops was much less than the yield of one, due to the fact that water runs short during the latter part of February to the middle part of May. Six most important varieties were found under cultivation, namely, the White and the Red Arabon, the White and the Red Lubang, the Pinili II; and the Oscure, a glutinous variety. The yields of these varieties ran from 30 to 80 cavans per hectare.

Farm blasting investigation (continued).—Dynamite of different strengths were used for making holes in which to plant fruit trees and for removing boulders and stumps. The boulders to be removed being very hard and the bamboo stumps very

deeply rooted and ramifying in all directions, two or more charges were found necessary. Fruit trees set out in holes blasted, measuring from 1 to 2 meters in diameter, exhibited more vigorous growth and more luxuriant foliage than those planted in holes dug by hand. The work cost from ₱0.12 to ₱0.24 per hole in loose soil and from ₱0.92 to ₱1.20 each in adobe rock as against ₱0.11 to ₱0.15 each in loose soil and from ₱1.20 to ₱1.50 in adobe rock dug with spades and other hand tools. Blasting out bamboo stumps cost from ₱3 to ₱3.50 a cluster measuring 1.5 meters in diameter as against ₱4 to ₱5 for uprooting them by man power; and for removing boulders from 1 to 1.7 meters in diameter the cost of dynamiting ranged from ₱0.50 to ₱0.90 as against ₱1.20 to ₱1.50 by man power.

MISCELLANEOUS FIELD INVESTIGATIONAL WORK

RUBBER INVESTIGATION

Para rubber.—It was found on investigating that Mindanao has approximately 345,249 tappable trees in the three Provinces of Cotabato, Davao, and Zamboanga, which are all outside the typhoon belt and have an evenly distributed rainfall and a humid climate; Bataan, 700 tappable trees; Sorsogon, about 5,000 trees, of which about 2,000 are of tappable age, and La Carlota Sugar Cane Experiment Station, La Carlota, Occidental Negros, 18 tappable trees.

Para rubber thrives best in Mindanao in plantations having surface soils varying from deep alluvial to very dark friable clay loam and subsoils of clay to brownish nonterracious clay. It also grows well in Bataan, which although it has distinct dry and wet seasons and is within the typhoon belt has areas protected by forest and suitable soil conditions.

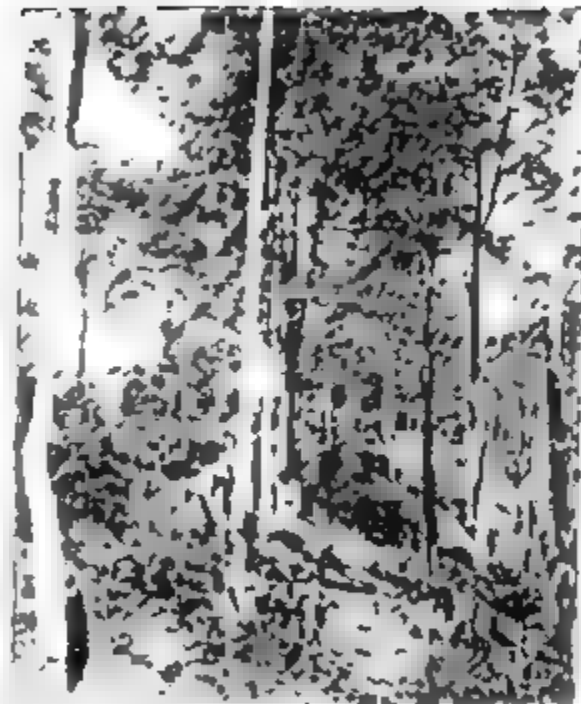
In Mindanao they prepare forest lands for planting rubber by the "catfish" system. The planting distances found best are: 20 by 24 feet, 30 by 22 feet, and 20 by 20 feet.

Ring-weeding, hoeing, and plowing are done in cultivating young trees, but when the trees are 4 or 5 years old catfish are turned in to pasture and tall growing weeds are cut down once in a while. Soil aeration is done by trenching 2 feet deep by 2 feet wide alternately, between rows. Catch and cover crops are grown on 1-4-year old plantations.

Low yields commence when the foliage is shed from February to April; the high yields are from July to January. Flower-



(c) Young rubber trees 3 years 3 months old under glass culture.
Gibberella Estate, Brazil



(d) Young rubber trees 3 years 3 months old under glass culture.
Gibberella Estate, Brazil

ing time is May to June; fruiting, August to October beginning at the age of from 4 to 5 years.

Strong winds reduce the yield from 30 to 50 per cent according to the manager of the American Rubber Co., Basian, Zamboanga, rain is found detrimental at the time of tapping but increases the flow of latex for the next four days.

The trees are tapped when from four to six years old but it is considered better to wait until the eighth year, because not till then is the bark thick enough to withstand severe injury. Tapping is done two feet above the ground and one foot above the former opening on the other side of the trunk. In a half spiral is the tapping system for young trees and one-third to one-fourth for older trees. A man taps from 300 to 500 trees in 2 to 3 hours work.

The average yield per tree not yet at its optimum yielding capacity is 1.06 kilos of dry rubber, and 2.83 kilos is a fair yield for older trees. The cost of production per kilo, including overhead charges is ₱1.22, and ₱752 is said to be the cost of bringing a hectare of rubber into bearing in Mindanao.

Castilloa and Ceara rubbers.—There were reported to be about 24,000 tappable *Castilloa* trees also in Mindanao and 52 tappable trees of *Ceara* rubber in La Carlota Sugar Cane Experiment Station, La Carlota, Occidental Negros. Rubber extracted from *Castilloa* is sold as scrap rubber and is of inferior quality to *Para* rubber; but *Castilloa* rubber extraction is simple and although the trees yield only about half as much as *Para* they are not so exacting as to cultural requirements. Six trees of *Ceara* rubber in La Carlota in 1923 yielded 59.6 grams which was only about one-third of the yield from six *Para* rubber trees, these having given 209.18 grams for three days' tapping.

COCONUT INVESTIGATION IN BATANGAS, BATAAN, MARBATE, BOMELON, AND ORIENTAL NEGROS

In Rosario, Batangas, it has been found that nuts from young trees (under 15 years old) used for seeding gave only 60 per cent germination and that the resulting seedlings were mostly rachetic.

Certain planters in Abucay and Cababin, Mariveles, Bataan, despite the well-marked dry season, can produce coconuts profitably, harvesting from 30 to 100 nuts per tree annually and selling the young one for confectionery purposes at from ₱0.10 to ₱0.15 apiece.

In San Jacinto and San Fernando, Masbate, the large coconut estates use tractors with disk plows and harrows to eradicate cogon and the like from their plantations, spending from ₱15 to ₱20 per hectare. At Uson, Masbate, certain homesteaders control rank weeds by plowing and harrowing the interspaces in the coconut groves 6 times a year at regular intervals and planting anew thickly with fast growing canotes.

Some coconut owners in Romblon and Iloilo find it profitable to lease their trees for taps tapping at the rate of ₱0.01 per day per tree throughout the year.

During the dry seas contractors are utilized in cultivating coconut trees on the Polo Coconut Plantation, Tanjay, Oriental Negros. The average cost is ₱12.70 per hectare.

ABACA INVESTIGATIONS IN SURIGAO, SAMAR AND LEYTE

In the northern part of Surigao and the central part of Samar where the soils is a heavy clay, abaca plants have been found to be of much smaller varieties—like the Bahauno in Surigao and the Lawisid in Samar—than those of Leyte where the soil is clay loam and sandy loam.

In Leyte, there are found the following varieties: the Inusa, productive; Layahon (Lisbon), having a fine white fiber; Banguisan, deep-rooted; Alman, with long and strong fiber excellent for rope making; Samoro, a fine fiber for cloth weaving (halas (wild) with brittle fiber.

Alman and Pinocuan have the longest fibers—from 3.45 to 3.80 meters. Alman and Lisahon are easy to strip; Agutay shows more of the banana than abaca characteristics.

The longest stalk found was of the Agutay variety. It measured about 4 meters and the heaviest production, 68.25 kilos of fiber per stalk, was from the Alman variety.

Canton and pakol were not found in Leyte, Surigao, and Samar.

No abaca disease or pest was found in the places investigated. Typhoons have always been the greatest enemy of abaca in these provinces.

All the plantations are old and neither cultivation nor rejuvenation was evident, though many of them had a good stand.

No modern stripping machines are used in these three provinces. The stripping knives used have teeth ranging from 18 to 32 and the grades of the fiber produced range from "J" down to "DM."

SEED AND PLANT INTRODUCTION

Seeds and plant materials acquired by the division during 1925 for propagation purposes:

Station	Number of		Quantity received			
	Species	Varieties	Seeds, tobacco, etc.	Number of bundles or cuttings	Number of plants	
			Number	Kilos		
Aikawa Rice Experiment Station	21	4	" 10			
Honjo. Baggage-Andon Station			1,917	291.00	3,353	500
Onimashita Abaco Experiment Station		42	55 294	4.00		7,289
Bagu Tobacco Experiment Station		29	5 74	41.50		
Launa Experiment Station	23	327	5 643	27.25	7,877	1,100
La Cariota Sugar Cane Experiment Station		30	5 22	55.42	5,222	00
La Union Tobacco Experiment Station		42	7	2 7	500	00
La Union Tobacco Experiment Station			160			
La Union Rice Experiment Station						
La Union Tobacco Experiment Station		78				5
La Union Cane Experiment Station		35	200	2.00	1,100	0
Total	179	415	21 4 183 2 374	287.50 1.57 11.57	11,700	2,000

* Packagern, * porci, * stes, * wozina, * wozilje, * kradnja.

INCOME

During the year the division has produced plant materials for free distribution for cooperative trial planting, for exchange with foreign governments, firms, institutions and individuals, etc., and for sale through the Extension Division as follows:

Product	Material	Estimated Value
Corn and cobs (H-19)	Wool tags and bands	1,249 80
Corn (H-2)	Waste	1,347 18
Corn (H-3)	Stalks	886 21
Forage (H-4)	Cuttings and remnants	884 83
Forage and feed (H-18)	Plants	10 40
Wagyu (H-9)	Feedstuffs and plants	1,077 22
Wagyu (H-9)	Feed	1,137 17
Wagyu (H-9)	Plants, seeds and plants	1,493 43
Wagyu (H-9)	Waste, seeds, and plants	1,493 28
Wagyu (H-9)	Waste, seeds, and plants	1,847 41
Wagyu (H-9)	Waste	8 14
Wagyu (H-9)	Corn and cobs	10,416 84
Wagyu (H-9)	Cuttings and plants	884 83
Wagyu (H-9)	Seed and waste	25 70
Wagyu (H-9)	Seed, plants and waste	25 70
Total		22,478 46

AGRICULTURAL EXTENSION DIVISION

The policy of the division to be of the utmost service to the public has been maintained and the people as well as the local public officials have shown increased cooperation by soliciting help from the extension agents in various agricultural improvement plans.

Three more provinces have been covered by the field force of the division this year, viz., Leyte with two agents and Zamboales and Bocos Norte with one each. Other provinces asked for the services of agents also but the division had no agents to detail therein.

Distributing rubber seeds and seedlings was a new activity of the division this year, in view of the interest of the public and the passage of Act No. 3230. (A detailed report on rubber appears elsewhere.)

The division supplied seeds and plant materials to 5,911 persons or 681 more than in 1924.

HORTICULTURAL CAMPAIGN

More fruit trees than ever, as shown by the table, were planted in the districts where agents of this division are assigned

Coffee	102,813
Mango (seedlings)	0,036
Mango (grafted)	411
Citrus (seedlings)	3,730
Citrus (budded)	517
Cacao	3,570
Chico (marcolled)	160
Rimba	1,001
Kapok	8,015
Lenzon	4,823
Avocado	336
Nangka	2,846
Coconut	31,121
Annonacoe	332
Bananas	13,678
Papaya	3,572
Pineapple	9,311
Miscellaneous fruit trees	3,002

There has always been a marked interest in grafting and budding work and if not for the lack of scions, especially citrus, much more could have been produced.

New use for banana petioles.—In this connection it may be of interest to say that in the Cebu Provincial Nursery banana petioles for grafting have been found to be satisfactory and economical substitutes for the sphagnum moss, manila paper and tying materials used in this work. In all the nurseries where banana plants are available this substitute is being used and the agents in the provinces are now using it in their fruit tree grafting campaign. As this material is within the reach

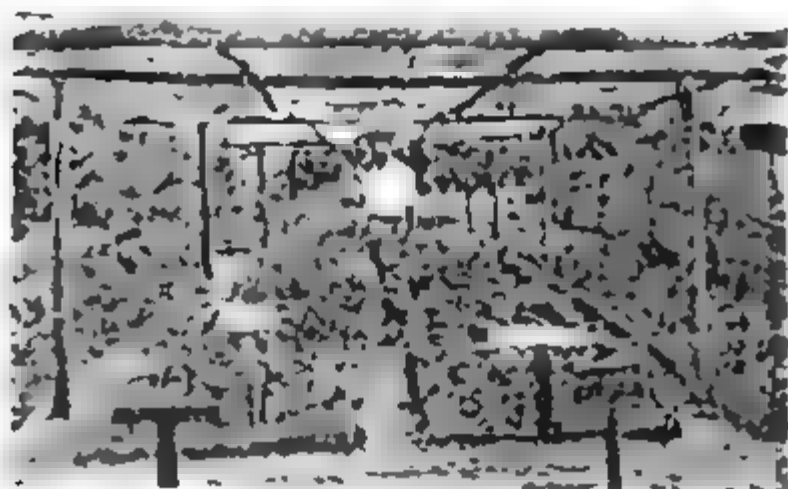
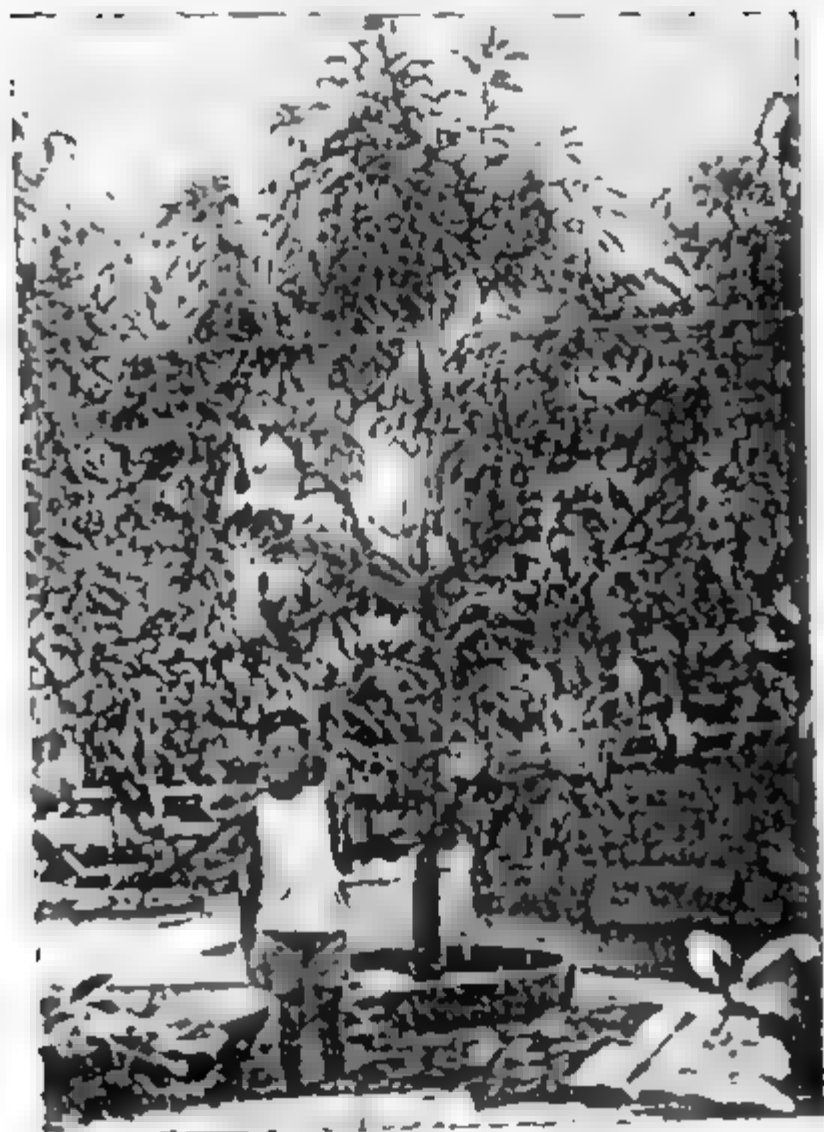


Fig. 1. The structure at the fair ground, 1890.



Fig. 2. The structure at the fair ground, 1890. (The structure at the fair ground, 1890.)



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of any farmer it is believed that it will soon be generally employed by fruit growers.

Field demonstrations.—As in previous year the agents helped the farmers in the different methods of plant propagation right on their farms. There were 1,050 citrus plants budded and 2,118 mango and 36 other trees grafted. There were also 826 chicks, 211 citrus, 279 lanson, and 103 trees macanilla and 3,150 citrus, 714 coffee, 550 cacao, and 487 other trees pruned.

Private nurseries.—In all places where seedlings could not be obtained from private or our nurseries, efforts were made by the agents to encourage farmers to establish their own nurseries and produce seedlings cheaply, these nurseries being directly supervised by the extension agents. The approximate number of plant materials available in these private nurseries is as follows:

Coffee	71,200
Cacao	6,475
Citrus	32,811
Lanson	7,220
Mango	797
Rimas	567
Coconut	10,854
Other trees	2,522

The seeds grown in these nurseries were secured locally with or without the aid of the extension agents. Some coffee seeds were supplied by the Bureau.

SEED AND PLANT DISTRIBUTION

Another main activity of the division is the distribution of seed and plant materials direct from the central office and the stations and nurseries under its supervision.

The value of the seeds distributed during the year was ₱7,128.81, of which ₱1,513.19 worth were given free of charge, and that of the plant materials was ₱13,700.78, ₱8,884.46 worth of which were given free. Other distributions made are reported in the station or nursery report from which the distribution was made.

Some of the seeds and plants distributed such as coffee, budded citrus, sugar cane, and other miscellaneous crops were furnished by the Plant Industry Division.

BINGALONG SEED TESTING AND PLANT PROPAGATING STATION

In this, the principal seed and plant distribution center of the division, there were produced during the year 6,757 grafted

mangoes, of which 2,552 have already been distributed. The station spent ₱16,046.08 and produced ₱27,576.83 worth of seed and plant materials, making a net income of ₱11,530.25. It handled 398 shipments of seed and plant materials.

LIPA DEMONSTRATION STATION

During the year there were raised in this station 91,000 seedlings of different fruit trees, of which 59,000 were coffee and 23,000 citrus. Over 42,000 of the coffee seedlings and about 6,000 of the citrus were distributed. Most of the seedlings distributed were planted during 1924.

There are over 23,000 plants of citrus, anonaa, mango, and santol in the nursery field for stock purposes. This station spent ₱3,636.02 and produced ₱10,567.84 worth of seed and plant materials, making a net income of ₱6,931.82.

LA PAZ (ILOILO) DEMONSTRATION STATION

During the last half of the year only three projects were engaged in at La Paz, namely, (a) producing seedlings of fruit trees for distribution and demonstrating a model orchard and various methods of plant propagation; (b) propagating improved varieties of sugar cane for distribution; and (c) producing vegetable seeds and raising miscellaneous field crops.

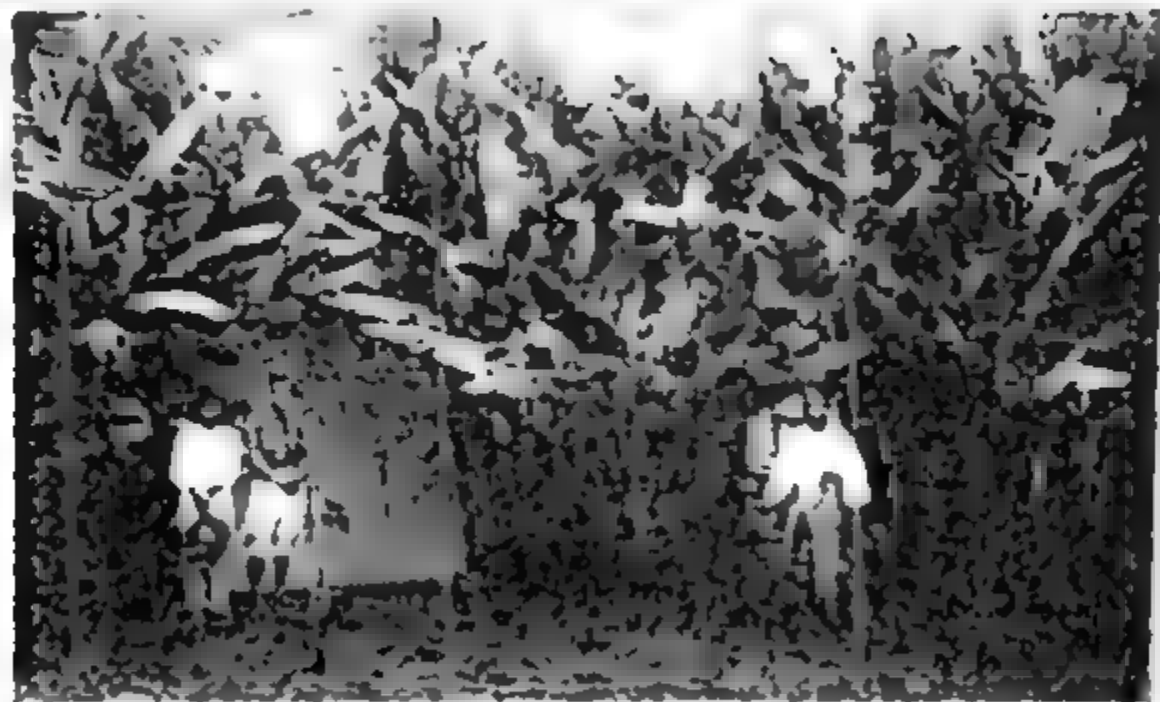
The poultry and swine project in the station has been discontinued since June.

As there is a great demand for grafted and budded plants from this station, efforts were made to produce a good supply and there are now 3,181 mango stocks in the nursery field, of which number 546 are grafted; 1,000 citrus with 244 budded; 159 lanzon with 114 grafted, besides santol and anonaceous plants.

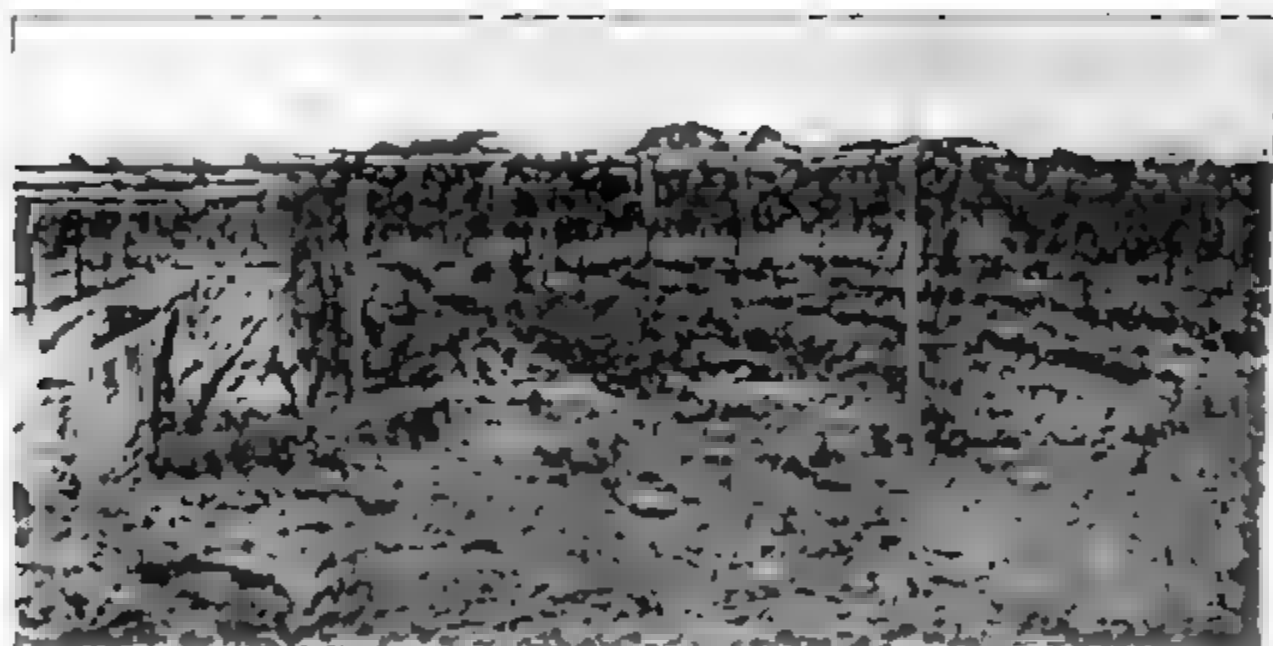
Eighty-seven seedlings of different fruit trees were set out in the model orchard of the station, which has now a total of 922 miscellaneous fruit trees, some of which are either budded or grafted.

The personnel of the station is also extending the scope of its activities outside the station by doing actual marcotting work and grafting and budding trees for the farmers. Lectures were also given on certain occasions.

The station spent ₱2,491.22 and produced ₱4,500.17 worth of seed and plant materials, making a net income of ₱2,008.95.



Shrub, fruit after the Congress Session



General surface of the Niagara Escarpment

These figures do not include the trees set out in the permanent field in the station, the budded and grafted stocks in the nursery field and the sales from the poultry-swine project.

NURSERIES

There are ten provincial and fourteen municipal nurseries under the supervision of this division. Two of the provincial nurseries are in Cebu and one each in the Provinces of Leyte, Bohol, Laguna, Bulacan, Nueva Ecija, Pampanga, Pangasinan, and La Union.

Not only are fruit trees propagated in these nurseries but some field crops, such as corn, sugar cane, vegetable, forage crops, etc., are produced for distribution purposes. In Santa Barbara, Pangasinan, rice and tobacco are also grown and graded swine and chickens raised to improve the animal breeds in that region.

The following table shows the records of fruit trees distributed and undistributed in these different nurseries during the year:

TABLE X

Kind	Cebu		Bohol		Leyte		Laguna	
	Distrib- uted	Undis- tributed	Distrib- uted	Undis- tributed	Distrib- uted	Undis- tributed	Distrib- uted	Undis- tributed
1. Coffee	4,997	13,734			2,240		2,881	6,029
2. Cacao	410	187			60		271	118
3. Citrus (seedlings)	824	6,697					304	1,350
4. Citrus (budded)	742	424					58	
5. Mango (seedlings)	1,809	8,212		10			444	310
6. Mango (grafted)	177	249					93	
7. Lantana seedlings	382	474					2,227	1,747
8. Lantana (grafted)	1	19					88	
9. Santol (seedlings)	227	1,080		200				
10. Santol (grafted)								
11. Pinna	117							
12. Nangka	233	290		190				
13. Pili	94	272		790		400		
14. Annonaceous	64	1,323						
15. Coconut	1,901	268						
16. Miscellaneous fruit trees	2,147	1,839		78		784	449	226

Kind	Bulacan		Nueva Ecija		Pampanga		Pangasinan	
	Distrib- uted	Undis- tributed	Distrib- uted	Undis- tributed	Distrib- uted	Undis- tributed	Distrib- uted	Undis- tributed
1. Coffee	197	2,869	430	4,774	1,005	2,477	2,551	1,288
2. Cacao			173	234		1,0	343	211
3. Citrus (seedlings)	1,916	5,766	547	436	3,370	1,107	930	
4. Citrus (budded)		281		9				31
5. Mango (seedlings)	4,784	2,708	482	671	806	894	31	31
6. Mango (grafted)	84	227	5	14			1,210	1,500
7. Lantana (seedlings)	594	1,084			809	146		500
8. Lantana (grafted)							2	
9. Santol (seedlings)		174						
10. Santol (grafted)	82	30						
11. Pinna							346	156
12. Nangka	294	541	21	115			274	
13. Pili			126	875				
14. Annonaceous	291	1,127			121	282	85	
15. Coconut			7,752	19,000				
16. Miscellaneous fruit trees	3	622	99	1,234	482	1,878	914	

Table X—Continued

Kind	La Union		Pangasinan		Rural		Cavite	
	Distrib- uted	Undis- tributed	Distrib- uted	Undis- tributed	Distrib- uted	Undis- tributed	Distrib- uted	Undis- tributed
1. Coffee	2 418	7,700	23 948	11 852	41	128		2,108
2. Citrus	2 497	810	822	258	131			458
3. Pine seedlings	1 708	8 908	636	14 224		884		2,208
4. Citrus seedlings	352	474				181		448
5. Mango seedlings	524	1,204		3,864		1,888		28
6. Mango grafted	122	184						288
7. Lanson (seedlings)								
8. Lanson grafted								
9. Sweet seedlings	92	1,568						
10. Roma	1,411	947						
11. Nango	2,261	2 870						
12. Annonas					193	117		28
13. Miscellaneous fruit trees	3 134	490		182	8			268

Among the municipal nurseries only the San Pablo (Laguna) Lanson Nursery sells seedlings. This nursery has sold ₱529.06 worth of lanson seedlings during the year and has in stock about ₱692.75 worth of seedlings and grafted plants.

The division's activities as to rice during the year consisted mostly of coöperative trial tests, a variety test, a dry season planting test and fertilizer tests in coöperation with the Plant Industry Division. As last year, the work was confined to Pangasinan, Nueva Ecija, Tarlac, and Bulacan.

It is gratifying to note the growing interest being shown by the farmers from year to year in coöperative trial planting. The greater areas planted to some of the Bureau seed palays this year by some of the more progressive farmers give proof of the progress made by the Bureau along this line.

Interest has also been shown in dry season planting in Pangasinan due to the good results obtained at Rosales and Tayug last year. Some of the farmers of Mannoag, San Nicolas, San Quintin, and Umifigan tried this with fair results this year. The varieties Sipot, Saigorot, and Mangasa were found quite adaptable in Pangasinan for this purpose.

Of the introduced palay in Pangasinan, the Khao Bai Shri, Rama, Ninalabon, Calibo III, Apostol, and Cruz have done well wherever they have been tried.

A preliminary coöperative fertilizer test was conducted in Bulacan, a commercial fertilizer containing 5 per cent N., 8 per cent P₂O₅, and 10 per cent K₂O being used. Eight coöperators made the tests applying it at the rate of 108 kilos per hectare. An average increase in production of 85 per cent for the different tests over the control tests was obtained. Similar tests will be made next year.



Figure 1. The stone tablet of the Temple of the Sun, showing the inscription.

SUGAR-CANE PROJECT

During the year, 147 cooperators on sugar cane were furnished with cane cuttings in the Provinces of Pampanga, Bulacan, Tarlac, Laguna, and Batangas. Twelve varieties were tried: namely, Badila, Hawaiian-109, Java 247, Lazon No. 2, New Guinea 24-A, Negros Purple, Cebu Purple, Barbados, Yellow Caledonia, Guro, Big Tana, and Louisiana Striped. Those that have shown good results are Badila, Hawaiian 109, Cebu Purple, and Guro. Badila and Hawaiian 109 are in great and increasing demand.

PRODUCERS' COÖPERATIVE ASSOCIATIONS

In the campaign to organize the local producers into cooperative producers' associations, which was continued this year, educational activities to inculcate in the minds of the farmers the benefits that would result from such organizations were stressed and while every effort was made to organize more associations wherever possible yet attention was concentrated on assisting those already organized with their business affairs.

Due to the many difficulties met with both in the campaign and in helping the associations to function, only six of the 24 coöperative producers' associations that existed at the beginning of the year remained active during the year, but two were added, as shown in the following table:

TABLE XI

Province	Municipality	Barrio	Date organized	Kind of association
Rizal	Taytay	Poblacion	7-15-23	Mango Cooperative Producers' Association.
Imbabura	Josen	Newmarket	9-17-23	Tobacco Cooperative Producers' Association.
Do	Naguilian	Mianaga	-24	Tobacco Cooperative Producers' Association.
Pampanga	Mexico	Laput	9-7-23	Poultry Cooperative Producers' Association.
Rizal	Caloocan	Talipapa	10-26-24	Poultry Cooperative Producers' Association.
Do	Palaos	Poblacion	10-31-24	Duck Cooperative Producers' Association.

Newly established this year

Rizal	Caloocan	Talipapa	IX, 1925	Poultry Cooperative Producers' Association.
Imbabura	Eschaghe	Dugayong	VII, 1925	Tobacco Cooperative Producers' Association.

The Siam-na Pinagisa Poultry Producers' Association at Talipapa, Caloocan, Rizal, is progressing, having it increased its capital from ₱500 to ₱1,012 this year. The members have

809 fowls, that produced 2,369 eggs, of which 2,288 were sold for ₱106.19. They also sold 37 fowls valued at ₱25.45. The association pays ₱15 monthly to the caretaker.

The Mexico Poultry Coöperative Producers' Association of Mexico, Pampanga is doing well. The laying hens increased from 34 to 84 this year and there are 6 cocks and 4 capons. Eggs laid, 1,581; sold, 1,063; chicks hatched, 389 from 518 incubated.

The Minanga Tobacco Coöperative Producers' Association in Naguilan, Iabels, organized last year, only began to function about the beginning of the year. There are 39 members and they helped each other in the construction of curing sheds. The members were able to plow and plant coöperatively about 16 hectares for tobacco. The association has at present 2,220 fardos of tobacco deposited in a bodega awaiting better prices.

The Nemmatan Tobacco Coöperative Producers' Association in Jones, Iabels, is the most successful association ever organized in the Cagayan Valley by the Bureau. It handles the tobacco crop of the members and got them ₱3.50 per fardo this year, the highest price obtainable in the Valley, to their great satisfaction.

The association was also able to harvest 100 oyones of palay from the forest-leased area in Nemmatan, Jones, which was leased from the Bureau of Forestry last year, and planted 4,125 different varieties of fruit trees valued at ₱521.52.

The Dugayong Tobacco Coöperative Producers' Association was organized in Dugayong, Echague, Iabels, about the beginning of the year. There are, however, only five members working coöperatively in the construction of their tobacco curing house and a tobacco warehouse. The association handles their own crops only.

The Mango Coöperative Producers' Association in Taytay, Rizal, has now been in existence for two years with satisfactory results to the people of the community. A nursery was started by a few interested farmers and later on converted into a municipal nursery. At present there are different varieties of fruit trees ready for distribution.

The Elias Enriques and Brothers Coöperative Poultry Producers' Association was organized this year in Tanke, Caloocan, Rizal, through the influence of the Siam-na-Pinagisa Poultry Coöperative Producers' Association, an association already in good running order, as beforesaid. With a capital of ₱465 the

association was able to construct a poultry house and start with 125 fowls.

The Samahang Maglilitik Cooperative Producers' Association in Pateros, Rizal, is still active. Educational activities make it instrumental in checking the big capitalists from taking undue advantage of the small duck raisers.

VEGETABLE PROJECT

During the year there were 18,301 home gardens and 252 commercial gardens covering an area of 777.55 hectares supervised.

Heavy rains, pests, and diseases greatly reduced the vegetable output, but the farmers planted more than ever to replace the crops thus lost.

MILK PROJECT

Only one agent worked on this project this year in the Provinces of Laguna and Pampanga. The work was purely educational—making actual demonstrations and giving lectures to individual farmers or in groups.

During the year there were 409 caraballa owners advised as to the proper feeds and feeding, care, and management of their animals to obtain more milk.

The campaign for the manufacture of cheese was confined to Laguna and Pampanga. There were 367 kilos of cheese valued at ₱582.50 produced as a result of the actual demonstration made under the improved methods.

The organization of the milk producers, however, was temporarily suspended this year on account of the outbreaks of rinderpest and anthrax occurring in some provinces from time to time.

POULTRY PROJECT

The campaign to increase the number of fowls and the production of eggs through the selection of good breeds, proper care and feeding and the organization of the producers to improve marketing methods was continued this year, especially in Rizal and Bulacan, although all agents in their respective provinces did similar work.

A poultry cooperative producers' association was organized in Tanke, Caloocan, Rizal, and the supervision of farmers engaged in commercial and individual poultry raising continued as usual. Forty-four commercial poultry raisers with a total of 5,758 fowls, besides 3,678 individual poultry raisers having a total of 45,463 fowls were advised and 3,339 capons produced.

Rinderpest and anthrax in some localities retarded progress. There were 2,294 chickens treated and 28 poultry houses disinfected from time to time.

Great interest has been shown by the farmers in the work of the agents in that their services are everywhere solicited especially for caponizing work, securing improved breeds and the treatment of diseases.

Educational work was done with the duck producers to improve the method of marketing their eggs in Manila.

TOBACCO PROJECT

The campaign to increase the production of a superior quality of leaf tobacco was continued this year by the six tobacco inspectors and one agricultural extension agent, all assigned in the provinces of Isabela and Cagayan. The work was mainly along educational and extension lines, special attention being given to proper cultural methods, curing and fermentation, and the classification and marketing of the leaf through the organization of the growers.

Actual demonstrations were made, lectures were given, conferences were held with the individual farmers and circulars distributed. Twenty gantas, 78 packets and 820 grams of improved tobacco seeds were distributed to 204 tobacco planters for trial work during the year. These varieties consisted of Sumatra, Anipa Sumatra, Florida Sumatra, Anipa Broad Leaf, Baker's Sumatra, Medium Ropollo, and the Pampano varieties. Florida Sumatra and Sumatra showed excellent results in Cagayan and Baker's Sumatra in Isabela both as to quality and production.

Materials furnished.—The farmers were also furnished by the Bureau and helped to secure tobacco seeds and seedlings. After the floods in the Cagayan Valley there were distributed 164,600 tobacco seedlings to replace those destroyed in the seedbeds.

They were also told how to construct curing sheds according to the revised regulations as amended, and helped to plant supplementary crops such as corn, rice, root crops, and fruit trees so that they would not be forced to sell their tobacco crop at a low price in time of need.

RUBBER DISTRIBUTION

The rubber agitation which began along about July of this year resulted in some 300 written requests for information and



planting materials, but seeds only became available in September. They were secured from Basilan, Zamboanga, and Sorsogon, and were from Para rubber trees.

Before the passage of the Rubber Bill, No. 3217, November 14, 1925, there had already been distributed 61,695 Para rubber seeds valued at ₱587.55 and 1,000 seedlings worth ₱60. During the year there was a total distribution of 108,859 Para rubber seeds valued at ₱1,222.17. Two thousand seedlings were purchased from Sorsogon for immediate distribution. Many inquiries in the Central Office and in the field were attended to. About 500 copies of circulars in English and in Spanish on rubber were distributed through this division during the year.

PLANT PESTS CONTROL DIVISION

LEGISLATION

Act No. 3163, which provided for the organization of scouting parties, was made operative only from the date of its enactment up to and including December 31, 1924, but this work being so important ₱100,000 was provided by Act No. 3217 (1925 Appropriation Act) to be disbursed in the same manner and for the same purposes as the funds appropriated by Act No. 3163. And in order that any of the unexpended balance of the ₱100,000 appropriated by Act No. 3217 for locust scouting work in the isolated places might be made legally available for paying the salaries and wages and other necessary expenses for the extermination of locusts in the cultivated places, Act No. 3223 was passed by the Seventh Legislature, and approved by His Excellency the Governor-General on October 19, 1925.

ADMINISTRATIVE ORDERS

During the year Administrative Orders No. 51 and 52 were promulgated by the Director of Agriculture in accordance with the Plant Quarantine Act No. 3027.

Administrative Order No. 51 put an interprovincial quarantine on all plants of the species of the genus *Musa*, in order to prevent the spread of the two dangerous plant diseases known as "heart-rot" and "root-rot" (bunchy-top), and revoked Bureau of Agriculture Administrative Orders Nos. 26 and 45; and Administrative Order No. 52 contains regulations governing the removal of sawdust, bagasse, and other vegetable matter or rubbish, from and near coconut groves; and declares the black beetle (*Oryctes rhinoceros*) to be a dangerous plant pest.

ACTIVITIES

The activities of the division during the year were confined to the following:

1. Administrative work.
2. Locust extermination work.
3. Inspection of incoming and outgoing plant materials.
4. Inspection of fields, orchards or gardens for the control of plant pests and diseases.
5. Collection and identification of insect pests and diseases of plants.
6. Survey and eradication of coconut budrot and other diseases and pests.
7. Survey and eradication of sheen diseases and pests.
8. Survey and eradication of *Loranthus* parasite of citrus and bark-rot diseases of the same host.
9. Entomological and phytopathological research work.

ADMINISTRATIVE WORK

Information service.—As usual, the division had an immense amount of correspondence to attend to, both routine and special, in connection with pests and diseases and there were many visitors seeking information and advice or special permits under quarantine orders, in the Central Office.

Contributions and gratuities funds.—Funds to the amount of P33,800, from the contribution and gratuities funds of this division, were allotted to the provinces to assist them in their campaign against agricultural pests and diseases as follows.

TABLE XII.—Showing distribution of contribution and gratuities funds

Province	Purpose		
	Locust extermination work	Coconut pests and diseases eradication	Other pests and diseases eradication
Batangas		P500	P500
Damarinas Norte		500	500
Camarines Sur		500	500
Cavite		5,000	1,000
Cebu	P5,000		
Davao		3,000	3,000
Iloilo		5,000	2,500
Luzon			500
Manila		500	
Marikina		500	
Orizaba Norte	2,500		
Panama	2,500		
Panama		3,000	
Palawan			500
Quezon			500
Surigao	500	5,000	500
Tarlac	500	1,000	500
Zamboanga			
Total	10,000	16,500	7,500

Balance of locust funds in the provinces at end of year.—Table XIII shows the balance of locust funds in each province. This fund is obtained from three sources, namely, (1) insular aid; (2) redemption fund (collected in accordance with section 16 of Act No. 2472); and fund from the regular appropriation of the province.

TABLE XIII.—Balance of locust funds (Act No. 2472) in the provinces at end of year

Province	Balance	Month reported
Abao	9802 19	November.
Agaña	55 65	November.
Abo	30 17	October.
Agaña	1 12 46	Do.
Agaña	841 28	June.
Agaña	3 918 72	October.
Agaña	8 02 10	Do.
Agaña	1 12 10	November.
Agaña	716 43	June.
Agaña	801 28	October.
Agaña	2 828 95	November.
Agaña	262 10	November.
Agaña	30 18	Do.
Agaña	4 12 11	May.
Agaña	100 17	November.
Agaña	2 847 10	October.
Agaña	1 476 16	November.
Agaña	315 19	June.
Agaña	75 34	October.
Agaña	47 00	November.
Agaña	21 00	June.
Agaña	67 10	November.
Agaña	1 148 40	October.
Agaña	81 00	Do.
Agaña	8 00	December.
Agaña	6 20 24	Do.
Agaña	805 62	November.
Agaña	411 07	Do.
Agaña	8 168 06	April.
Agaña	8 000 00	October.
Agaña	8 07 10	Do.
Agaña	2 000 10	November.
Agaña	1 75 50	Do.
Agaña	421 07	October.
Agaña	179 11	March.
Agaña	7 12 75	October.
Agaña	8 587 24	November.
Agaña	1 100 00	October.
Agaña	800 00	Do.
Agaña	230 00	November.
Agaña	1 862 16	October.
Agaña	344 70	Do.
Agaña	4	
Agaña	602 00	November.
Agaña	300 00	October.
Agaña	723 25	November.
Agaña	800 00	October.
Agaña	300 00	September.

It will be noted from table XIII that every province has a healthy balance of locust funds, the aggregate being over ₱53,085.88.

LOCUST SCOUTING FUNDS

TABLE XIV.—*Distribution of locust scouting funds to December 31, 1925*

AMOUNTS TO PROVINCES	
Province	Amount allocated
Bohol	₱8,000.00
Cagayan	8,000.00
Catubato	2,000.00
Bukidnon	3,000.00
Misamis	1,000.00
Mindoro	3,000.00
Mountain Province	2,500.00
Isabela	6,000.00
Nueva Ecija	6,000.00
Toyahua	2,500.00
Zamboanga	1,000.00
Total	₱48,000.00
INCIDENTAL EXPENSES	
Traveling expenses of personnel	19,987.83
Freight, express, and delivery service	2,086.21
Postal, telegraph, and cable service	820.63
Consumption of supplies and materials	10,161.25
Maintenance and repair of equipment	800.00
Other charges	14.37
Purchase of equipment	2,013.63
Total	34,899.78
Grand total	82,899.78

LOCUST EXTERMINATION

As last year, the locust extermination work consisted of (1) the general locust campaign and (2) the locust scouting.

General locust campaign.—This comprised the work of exterminating locusts in the populated regions in accordance with Act No. 2472, supplemented by Act Nos. 3146 and 3223, both providing for sources of additional funds for this purpose.

The locust infestation during 1925 was less serious than usual, at the beginning of the year there having been but 45 towns infested, as compared with 60 in 1924. The lowest point of infestation was reached late in February, when only 18 towns were reported infested as against 34 for the preceding year. At the height of infestation (during July, August, and September) all available forces of the Bureau were employed, and the Honorable, the Secretary of Agriculture and Natural Resources, solicited the cooperation of all the provincial and

municipal officials, through the Chief of the Executive Bureau. The maximum number of towns infested was 121, while in 1924 it was 208.

When the newly elected officials took office in October a vigorous campaign was waged throughout the Islands, resulting in the diminishing of the pests towards the end of the year, when 51 towns only remained infested.

The three most seriously infested provinces were:

1. Tabuk and the provincial district of Kalanga, Mountain Province, lying in a great grassy valley that is an ideal breeding place for locusts. The swarms in Cagayan and Isabela probably came from there.

2. The region on either side of the mountains in the Bonda Peninsula in Tayabas, which is grassy and but sparsely settled.

3. The Province of Bohol, which is continuously infested because of the central plateau, where there are dense coponares whence locusts swarm over not only the rest of the island but also over the surrounding Provinces of Leyte, Cebu, Oriental Negros, and Misamis.

The infestations are summarized in Table XV, compiled from data submitted by provincial governors, constabulary commanders, and locust inspectors of the Bureau.

TABLE XV.—Showing locust infestations during the year 1925

Province	Number of municipalities			Chronological status 1925
	Infested	Free	Still infested	
1. Bulacan	1	1	0	July 20 to July 27.
2. Cebu	20	25	10	January 5 to December 31.
3. Camarines Norte	0	0	0	August 21 to November 22.
4. Camarines Sur	1	1	0	October 3 to December 4.
5. Cagayan	22	14	0	January 5 to December 31.
6. Iloilo	44	37	7	June 11 to December 31.
7. Isabela	1	1	0	July 9 to July 21.
8. Isabela	10	0	4	February 7 to August 16; and from August 22 to December 31.
9. Iloilo	1	1	0	May 26 to June 9.
10. Leyte	18	17	1	July 27 to August 8 and from August 10 to December 31.
11. Marikina	2	1	2	July 27 to August 8 and from August 19 to December 31.
12. Mindoro	1	1	0	January 8 to January 31.
13. Misamis	2	2	0	January 3 to December 31.
14. Mountain Province	13	7	0	January 3 to December 31.
15. Nueva Ecija	17	19	0	May 11 to August 17.
16. Nueva Vizcaya	0	0	2	March 7 to December 31.
17. Oriental Negros	2	2	0	July 22 to September 13.
18. Oriental Negros	23	23	0	June 4 to December 10.
19. Palawan	1	0	1	September 15 to December 31.
20. Samar	1	1	0	June 3 to June 25; and from July 3 to August 3.
21. Tayabas	7	2	2	January 3 to December 31.
22. Zamboanga	0	0	0	January 12 to November 7.
Grand total	218	184	31	

Provinces infested with locusts during the year 1925.... 22

Provinces freed from locusts infestation during the year 11

Provinces still infested..... 11

Provinces doing extermination work under Act No. 2472.—All the provinces listed in Table XV did extermination work under Act No. 2472, except the Province of Cagayan.

Provinces enforcing Act No. 3146.—Act No. 3146 was enforced in the Province of Cagayan with difficulty; rejected in the Province of Bohol; and being considered in the Provinces of Camarines Norte and Nueva Vizcaya.

The work of the provinces.—Under Act No. 2472 most of the provinces rendered excellent service, with little or no financial assistance from the Bureau of Agriculture.

In some badly infested provinces, provincial inspectors were employed by the province. For the sake of efficiency, they were put under the supervision of the Insular locust inspectors.

Much praise is due to the provincial and municipal officials of the locust infested provinces in general for their locust campaigns. Batangas Province was reported infested on July 20, but due to the vigorous campaign waged by the officials it was freed from locusts by July 27. Camarines Sur was reported infested August 28, and freed November 28. Iloilo was reported infested from July 9 and freed July 28.

Occidental Negros was infested from July 29 to September 12; and the provincial and municipal officials of Surigao cleared that province between June 13 and August 3.

There were some cases of official negligence, however, that had to be taken up with the executive authorities.

The work of the Bureau of Agriculture.—Locust inspections were made by the inspectors of the Bureau in all the infested provinces, except in the Provinces of Lanao, Masbate, Sulu, and Surigao.

. LOCUST SCOUTING

The same general plan was followed in the year under consideration as in 1924. The work started in the Provinces of Bohol, Cagayan, Isabela, Mindoro, Mountain Province, Nueva Ecija, Nueva Vizcaya, and Tayabas was resumed in April and extended to the Provinces of Bukidnon, Cotabato, Misamis, and Zamboanga.

Airplane scouting.—Scouting parties, with the aid of the Bureau airplane, were mainly responsible for cleaning up Mindoro, which was reported infested from January 3 to January 31, and remained free of locusts the rest of the year. Thereafter, the airplane was used in locating the breeding of the locusts, until it had to be shipped to Manila in August, 1925, for overhauling.

Comparative success.—The success of the locust scouting may be noted by comparing the locust infestation graphs for the last three years (1923, 1924, and 1925), which show that when work was done in the isolated places last year the infestation was less than in 1923 and 1924. Obviously the locust situation cannot but become less serious year by year if locust scouting work is continued.

TABLE XVI.—Showing summary of quantities of locusts destroyed and amount of damage done to crops by the locusts during the year 1925

Province	Amount of locusts destroyed					
	Eggs		Hoppers		Flyes	
	Cocoons	Germes	Cocoons	Germes	Cocoons	Germes
1. Batangas			1	3		15
2. Bohol	102	14	4,734	5	1,808	10
3. Cagayan			2,854	182	294	89
4. Camarines Norte			108	12	725	..
5. Camarines Sur			6		707	..
6. Cebu	204	14	9,769	6	8,086	..
7. Iloilo		10				..
8. Isabela			6,482	2	1,183	..
9. Lanao						..
10. Leyte	148	28	964	1	680	12
11. Mindanao	1	20	445	46	269	16
12. Mountain Province	36	14	1,466	2	848	24
13. Misamis					6	..
14. Misamis	2	24	940	28	308	..
15. Nueva Ecija	1	3	121	13	811	..
16. Nueva Vizcaya		12	2,725	476	632	21
17. Occidental Negros			3	2	2	..
18. Oriental Negros			5,394		2,268	6
19. Palu					4	15
20. Surigao			128	21	1,207	187
21. Tayabas			262	..	297	..
22. Zamboanga						..
Grand total	671	90	26,468	51	18,521	15

Province	Damage				
	Rice in hectares	Copra in hectares	Sugar cane in hectares	Cocoanut number of trees	Miscellaneous crops in hectares
1. Batangas	828	246	86	5,448	64
2. Bohol	62	85	1		15
3. Cagayan	18	3		1,808	..
4. Camarines Norte		4			..
5. Camarines Sur	21	3,982	242	43,242	112
6. Cebu					..
7. Iloilo	1		1		..
8. Isabela					..
9. Lanao	56	20	11	30	..
10. Leyte					..
11. Mindanao	12	11			..
12. Mountain Province					..
13. Misamis	28	1,212		2,670	18
14. Misamis	26	2	9		6
15. Nueva Ecija					..
16. Nueva Vizcaya					..
17. Occidental Negros	2	125	4		..
18. Oriental Negros					..
19. Palu					..
20. Surigao	10	16	734		..
21. Tayabas	72	71		351	61
22. Zamboanga					..
Grand total	778	6,747	410	24,815	297

TABLE XVII.—*Showing the number of municipalities and sitios inspected and the amount of locusts caught and destroyed*

Province	Number of municipalities		Number of sitios	
	Inspected	Infected	Inspected	Infected
1. Bohol	3	2	822	120
2. Bukidnon	4		181	
3. Cagayan	14	10	390	191
4. Cotabato	2		8	
5. Ilocos	12	2	174	60
6. Mindoro	4	0	260	4
7. Misamis	4	0	98	18
8. Mountain Province	10	1	142	37
9. Nueva Ecija	4	1	112	20
10. Nueva Vizcaya	7	0	92	32
11. Tayabas	4	6	244	104
12. Zamboanga	1	2	22	1
Grand total	81	20	2,106	371

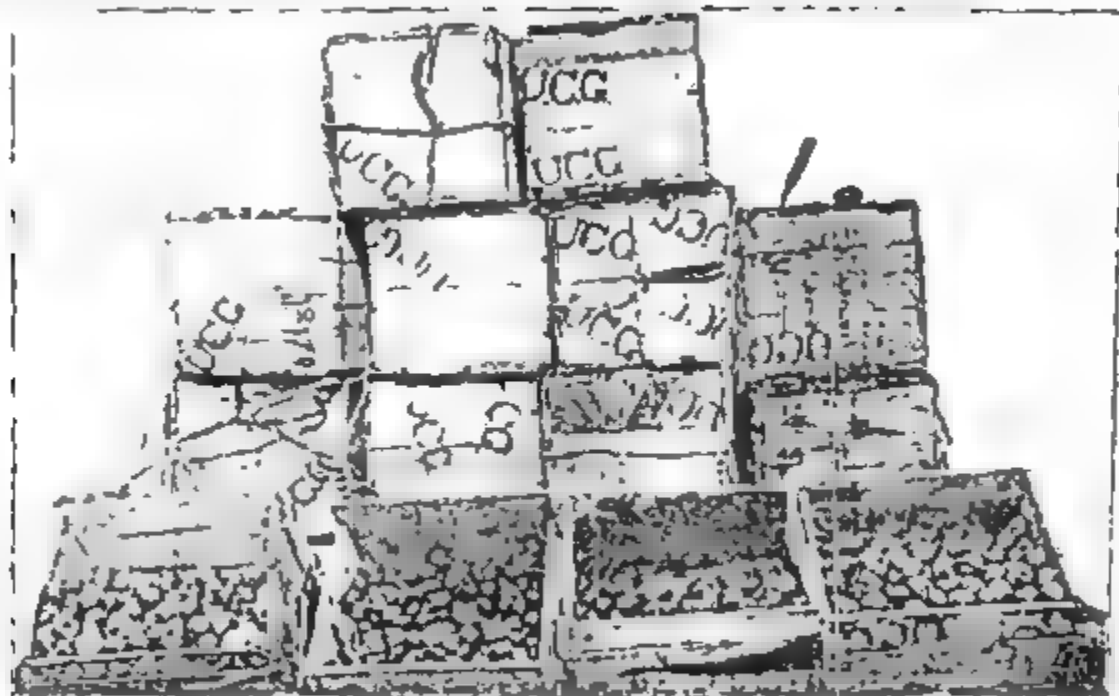
Province	Isolated places in hectares				Locust caught in various		
	Approachable areas	Area inspected	Area uninspected	Area infested	Eggs	Hoppers	Flies
1. Bohol	150,000	84,361	75,639	2,315.8	2.50	2,170	308
2. Bukidnon	840,000	118,134	721,866				
3. Cagayan	200,000	127,000	73,000	560	1	1,004	627
4. Cotabato	3,400,000	201,450	3,198,550				
5. Ilocos	400,000	50,748	349,252	1,278	1	616	316
6. Mindoro	340,000	80,265	259,735	400		75	8
7. Misamis	100,000	12,071	87,929	130			37
8. Mountain Province	200,000	61,184	138,816	905	71.50	2,154	210
9. Nueva Ecija	210,000	130,534	80,466	308		620	3
10. Nueva Vizcaya	100,000	17,510	82,490	982	13	917	617
11. Tayabas	100,000	2,001	98,000	845		450	629
12. Zamboanga	400,000	3,352	396,648	918	0		39
Grand total	8,200,000	804,371	7,395,629	7,834.8	100.52	10,100	2,527

INSPECTION OF INCOMING AND OUTGOING PLANT MATERIALS

The activities of the plant quarantine service at all the plant quarantine ports; namely, Manila, Cebu, Iloilo, and Zamboanga, were confined to inspecting imported and exported plant materials in accordance with the various administrative orders promulgated by the Director of Agriculture under the Philippine Quarantine Act (No. 3027).

Inspection of vessels, baggage, and passengers.—All vessels from foreign countries (including round-the-world tourist ships) were boarded and searched for contraband plant materials.

Inspection and certification of incoming plant materials.—After the inspection of the vessels and baggage, the inspection of the cargo was next made, that is, all fruits, vegetables, living plants, cuttings, seeds and other plant materials coming to the Philippines from foreign countries were inspected. Plants arriving at the port by mail were also inspected upon notification



of the presence of such plant materials in the post office. The inspection for the purpose of determining whether such shipment should be passed or destroyed is the same as for materials coming through the customhouse.

Prohibited plant materials allowed under permit.—Six permits were issued for the importation of prohibited plant materials for food and propagation purposes. Those for propagation were quarantined in isolated places on land belonging to the permittees.

Imported nursery stocks, cuttings, seeds and other plants passed for propagation purposes.—The total number of parcels of these plant materials which entered all the ports of entry was 1,871. These were mostly inspected in the post office.

TABLE XVIII.—*Résumé of inspections and interceptions of plant materials*

Number of ships inspected from foreign ports.....	907
Number of passengers arriving from all countries.....	56,248
Number of passengers arrived from fruit-fly infested countries.....	3,714
Number of pieces of baggage inspected.....	17,994

NUMBERS OF PARCELS INSPECTED

Arriving through the customhouse:

Passed.....	855,846
Treated and passed.....	231
Partly selected and passed.....	8,335
Partly selected and destroyed.....	656

Contraband:

Destroyed.....	64
Returned.....	272
Placed under quarantine.....	3
Passed under permit.....	94

Total..... 865,408

Arriving by mail:

Passed.....	1,073
Treated and passed.....	19
Partly selected and passed.....	3
Partly selected and destroyed.....	1

Contraband:

Destroyed.....	4
Returned.....	0
Placed under quarantine.....	0
Passed under permit.....	3

Total..... 1,103

Total passed..... 866,719

Total parcels treated..... 250

Total parcels partly selected and passed..... 8,338

Total parcels partly selected and destroyed..... 657

Number of parcels inspected—Continued

Total parcels contraband:

Destroyed	68
Returned	372
Placed under quarantine	5
Passed under permit	97

Grand total parcels inspected 646,508

VIOLATION OF ADMINISTRATIVE ORDERS

Between 400 and 500 parcels of contraband plant materials were intercepted by the plant quarantine inspectors during the year. These were mostly sugar cane, citrus, rice, bamboo, and pineapples.

There were also slight violations of the plant quarantine rules and regulations, for example, the removal of plant materials from the piers, without their having been previously inspected and certified to by a plant quarantine inspector. The offending parties were duly admonished.

PATHOLOGICAL AND ENTOMOLOGICAL INTERCEPTIONS

TABLE XIX.—Showing pathological interceptions

Country of origin and disease	Host	Intercepted in
CUBA		
<i>Gladosporium</i> sp. (Citrus cank)	Oranges	Manila.
<i>Phoma citricarpa</i> (black spot)	Do.	Manila and Cebu.
<i>Phomopsis citri</i> (Mal secco)	Do.	Manila.
<i>Penicillium</i> sp. (Green mold)	Garlic	Manila.
<i>Penicillium</i> sp.	Oranges	Manila.
<i>Penicillium</i> sp.	Litchi and loquats	Cebu.
<i>Fusicarium</i> sp. (soft rot)	Lily root, taro	Manila.
<i>Fusicarium</i> sp.	Irish potatoes	Do.
<i>Fusicarium</i> sp.	Ginger	Cebu.
<i>Fusicarium</i> sp.	Irish potato	Zamboanga.
Dry rot	Onion	Manila.
Spot on pine.	Pears	Cebu.
<i>Parasolenia coccinella</i> (black rot)	Cabbage	Zamboanga.
<i>Lasiodiplodia</i> sp.	Sweet potatoes	Do.
<i>Venturia pyrena</i> (pear)	Pears	Manila.
<i>Rhizopus</i> sp.	Taro and sweet potato.	Do.
UNITED STATES		
<i>Penicillium</i> sp.	Cherry, grapefruit, apple, orange, and plum	Do.
<i>Alternaria brassicae</i>	Cabbage	Do.
<i>Alternaria dianthi</i>	Melon and tomato	Do.
<i>Alternaria</i> sp.	Cantaloup	Do.
<i>Gladosporium</i> sp.	Grapefruit	Do.
<i>Lasiodiplodia</i> sp. (Anthracnose)	Pear and peach	Do.
<i>Rhizopus</i> sp.	Peaches and plums	Do.
<i>Penicillium palmorum</i>	Berry-like succulents	Do.
<i>Penicillium buxipal</i>	Logan berries	Do.
<i>Corynespora bayeri</i>	Pears	Do.
<i>Phoma</i> sp.	Melon	Do.
Bacterial blight	Grapefruit	Do.

TABLE XIX.—Showing pathological interceptions—Continued

Country of origin and disease	Host	Intercepted in
SPAIN		
<i>Aspergillus niger</i>	Mangosteen	Manila.
<i>Phytophthora palmorum</i>	Palm	Do.
AUSTRALIA		
<i>Venteria inaequalis</i>	Apple	Zamboanga.
HOLLAND		
<i>Pseudomonas citri</i>	Pomelo	Do.
<i>Penicillium</i> sp.	do.	Do.
<i>Mutinus erici</i>	do.	Do.
HUNGARY		
Dry rot	Cocoa	Hilo.
JAPAN		
<i>Pseudomonas citri</i>	Citrus	Zamboanga.

TABLE XX.—Showing entomological interceptions

Origin and pests	Host	Intercepted in
UNITED STATES		
Scale insects	Lemon	Manila.
<i>Chrysomphalus auratus</i> (adult)	do.	Do.
<i>Carpocapsa pomonella</i> (larvae)	Apple	Do.
Red scales	Citrus	Do.
CHINA		
Beetle	Orange	Cebu.
Worm	do.	Do.
Beetle (larvae)	do.	Do.
<i>Euthypa pecti</i>	Orange	Do.
Beetle	Pear	Zamboanga.
Apple	do.	Do.
Blow	Cabbage	Do.
<i>Cactophilus</i>	do.	Do.
<i>Phanococcus</i> sp.	Lemon	Manila.
Scale	Orange	Zamboanga.
Oil insect	Citrus	Manila.
<i>Carpocapsa pomonella</i>	Apple	Do.
Beetle	Lemon	Do.
HONGKONG		
<i>Pseudomonas</i> sp.	Mangosteen	Do.
Scale	Apple	Do.
JAPAN		
Scale	Citrus	Zamboanga.
SPAIN		
Worm	Orange	Hilo.
AUSTRALIA		
<i>Aspidiotus</i> sp.	Apple	Zamboanga.

INSPECTION AND CERTIFICATION OF OUTGOING PLANT MATERIALS

Plant materials intended for exportation are also inspected in the plant quarantine ports and the majority either fumigated or disinfected before certification.

TABLE XXL.—Showing the number of parcels certified and exported to the different countries

Country	Number of parcels	Country	Number of parcels
China	23	Brick	2
Japan	46	Mitribus Islands	2
Java	39	Queensland	1
Holland	8	Panama, Canal Zone	21
British Settlements	8	Central America	30
United States	45	Port of Spain Indies	4
Shanghai	4	Ecstasy	1
Quang	6	England	5
Kyushu	1	South Africa	2
Australia	7	Central Africa	1
New South Wales	1	Ceylon	1
Cuba	2	South America	1
New Guinea	1	Rio de Janeiro	3
Seychelles Island	3	Singapore	4
France	8	Hongkong	1
Palm City	2	Samoa	1
India	16	Ceylon	1
Formosa	6	Sweden	1
Total			318

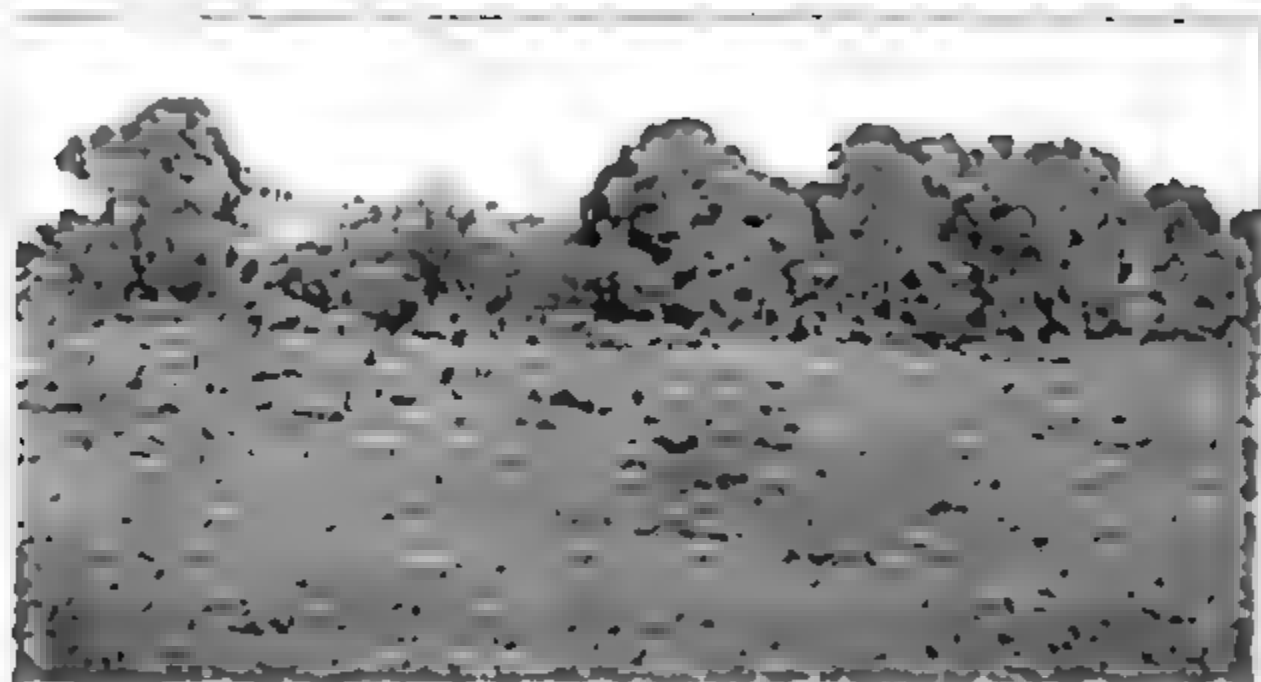
INSPECTIONS OF FIELDS, ORCHARDS, AND GARDENS FOR THE CONTROL OF PESTS AND DISEASES

Owing to the limited number of technical men of the division, it was only in serious cases that men could be sent to places where infestation of insect pests or outbreaks of diseases occurred to investigate and to explain to and actually show the farmers and other parties interested how to control such pests and diseases.

PLANT PESTS

Insect pests.—Rice insects, the rice bug (*Leptocoris acuta*), the rice stem borer (*Schoenobius incertellus*), the rice caterpillars (*Spodoptera mauritia* and *Prodenia litura*) and the rice case worm (*Nymphula depunctalis*) were the most common causes of complaints during the year, especially from the Provinces of Laguna, Pangasinan, Nueva Ecija, Tarlac, Pampanga, Bulacan, La Union, Ilocos Norte, Batangas, Iloilo, and Zambales. Extended field trips were made by our inspectors in those provinces and personal help and advice were given the farmers. Copies of our publications on the pests were distributed and lectures given.

Of the rice insects mentioned, the grass army worm (*Spodoptera mauritia*) was especially troublesome in May and June, 1925, over extensive areas in Batangas, Cavite, Laguna, Rizal, and Mindoro and in other provinces.



Orange Lake, Oregon. Forest growing around edge of lake at foot of Mt. Hood.

The grubs of the "toy beetle" (*Leucophelia irrorata*) were also troublesome. Various municipalities in Batangas, especially Balayan, Tanauan, and Lipa, from which most of the complaints regarding the grubs came, were visited by our inspectors, and methods of control explained.

In Davao an outbreak of caterpillars known locally as "pague-pague" occurred in July, 1925. About 1,000 trees had their leaves almost completely eaten up by the caterpillars. These caterpillars were those of the real or common "pague-pague," the coconut slug-caterpillars, *Thoesa cinereamarginata*.

In Tacloban, Leyte, the black or rhinoceros beetle (*Oryctes rhinoceros*) did so much damage to coconut trees in Abuyog in July as to discourage the farmers from planting more coconuts.

Administrative Order No. 52 of the Bureau of Agriculture, which compels the people to clean their premises and their groves to prevent the increase of the rhinoceros beetles was furnished the officials concerned. The enforcement of this administrative order will indirectly control the weevil (*Rhyncophorus ferrugineus*), which is also a common cause of complaints from coconut planters, as the disposal of coconut stumps and dead trees, as required by that administrative order, will deprive it of breeding places, to a great extent.

Miscellaneous pests.—In a survey made at Fort Mills, Corregidor Island in the latter part of 1925, termites were found to have caused the death of many ornamental shrubs and shade and fruit trees. Personal inspection was made and detailed control measures were furnished.

Rats were reported to be devouring much rice in Iloilo, Samar, Mindoro, Laguna, Nueva Ecija, and Rizal. In most cases white arsenic was furnished free to the parties requesting help from the Bureau. The people in many places have used this chemical before and obtained satisfactory results.

Wild hogs, crows, mayas, bats, slugs and snails; and white ants, aphids and other insect pests did damage to some extent also. When possible men were sent from the Central Office to investigate and advise the farmers what to do, or to do it for them. Otherwise, letters and circulars were sent to the parties complaining.

A single report of trouble due to earthworms that were boring through the dikes and thus draining the water from the rice paddies was received from the Mountain Province.

PLANT DISEASES

Rice diseases.—The most common diseases of rice found in the different provinces so far surveyed are as follows: *Piricularia oryzae*, *Cercospora oryzae*, *Helminthosporium* sp. and *Phyllosticta muriei*. The usual measures for controlling these were advised to the farmers during the survey made by each inspectors. However, the damage caused by these diseases were not so serious as that done by the insect pests attacking rice.

Citrus diseases.—The most common citrus diseases reported during the year were gummosis, canker and foot-rot.

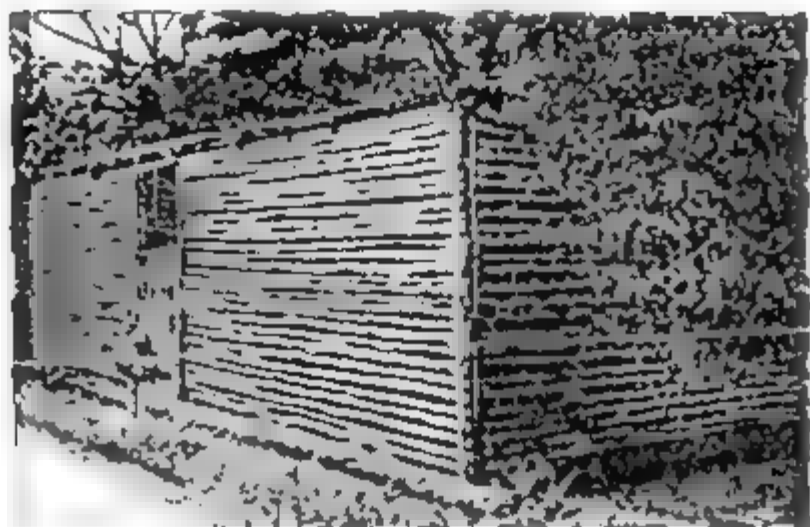
Abaca diseases.—A fungus disease belonging to the genus *Narasmus* and Mosaic, the latter locally called "Cabilao" or "Boiris" were reported from Almagro, Samar, in March, 1925. A brown leaf spot disease was reported from Calapan, Mindoro. The prevalence of heart-rot and bunchy-top diseases is given elsewhere in this report.

Banana diseases.—Abaca heart-rot and bunchy-top, were both reported from the municipality of Lilio, Laguna, as infecting some banana plants there. The two leaf spots caused by the fungi *Mycosphaerella musae* and *Macrophoma musae* were both reported from the municipality of Santa Cruz of the same province. Banana wilt was reported from Quingua, Bulacan, and from Cuenca, Batangas.

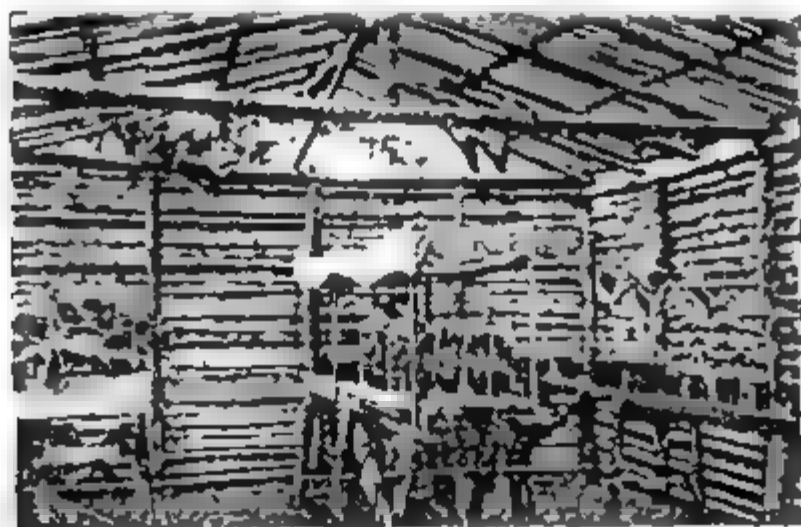
Coconut diseases.—The most important diseases of coconut reported and attended to this year are the bud-rot and stem-bleeding (*Thidemiopsis* sp.) in Laguna, Cavite, Tayabas, Batangas and Zamboanga, leaf spot (*Pestalotia palmarum*) in Naujan, Mindoro, and in Tacloban, Leyte, and other places, nut-fall in Laguna, Tayabas, and Palawan; and leaf blight (*Phyllosticta* sp.) in Manila on the plants owned by the Philippine Manufacturing Company.

Agave diseases.—Besides anthracnose (*Colletotrichum agaves*) on maguey (*Agave cantala*), three new diseases of agave plants were reported this year. Mosaic or yellow spot⁷ was found attacking maguey and misal leaves and *Helminthosporium* sp. on henequen. The specimens were received from Cebu.

Sugar-cane diseases.—The important diseases and pests of sugar cane investigated by the different inspectors were: Fiji and Mosaic in Almagro, Samar, and an unknown leaf-spot disease and *Aeginetia indica* in Lupa, Batangas; rind disease in Santa Cruz, Laguna; and sugar-cane wilt (*Cephalosporium sacchari*) in Tayug, Pangasinan.



(a) Exterior view of the Greenhouse



(b) Interior view of the Greenhouse

Coffee diseases.—The diseases of coffee caused by rust (*Heemileia vastatrix*) and a disease caused by a species of *Fusarium* were the subjects of complaints from Laguna and Batangas.

Tobacco disease.—Tobacco brown wilt (*Bacterium splanacearum*) and wilt (*Fusarium oxysporum*) were found prevalent in the municipalities of Tubao, Agoo, Rosario, Aringay, Cava, Santo Tomas, Naguilian, and Bauang, when a survey was made in those municipalities in March.

Vegetable diseases.—The black rot of cabbage (*Pseudomonas campestris*) was found prevalent in the Hacienda Concepcion, Camp Stotsenberg, Pampanga. Watermelons were found infected with powdery mildew (*Erysiphe* sp.), tomatoes with bacterial wilt, and peppers with brown leaf spots.

Miscellaneous diseases.—The black rot of cacao pods caused by *Phytophthora faberi*, was reported from Bauan, Batangas.

A fungus disease caused by a species of *Colletotrichum* fungus was found infecting papaya fruits in Silang, Cavite, and in Manila.

A species of *Colletotrichum* fungus was found attacking atis. Two other diseases were found; namely, *Erysiphe* sp. attacking the leaves of atis growing in San Juan Heights and *Lasiodiplodia theobromae* on atis fruits in Pangasinan.

The mango diseases reported were gumosis in San Juan Heights and anthracnose in Corregidor Island and Laguna Province.

A slight outbreak of a disease caused by a species of *Phytophthora*, occurred among the santol seedlings in the Singalong Experiment Station.

The diseases found attacking lanzones in the municipalities of Lilio and Santa Cruz, Laguna, were the leaf-spot caused by *Marasmius* and *Guignardia* fungi.

The other diseases found during the survey in Santa Cruz, Laguna, were as follows: *Gleosporium* sp. on avocado; *Guignardia arcas* on betelnut; *Cercosporium gossypina* on cotton; *Cercospora maniotis* on cassava; *Helminthosporium inconspicuum* on corn; *Gleosporium mologense* on eggplant; *Rhizopus arto-carpus* on nanka; *Phytophthora faberi* and *Cladosporium phaseoli* on beans, and *Asterinella stuhlmani* on pineapple.

Garden plants in and around Manila were treated for various pests and diseases of minor importance. Some 150 requests

were received and most of them attended to by the technical personnel and to the satisfaction of the complainants.

COLLECTION AND IDENTIFICATION OF PESTS AND DISEASED PLANT SPECIMENS

Collecting, keeping, and recording specimens.—Representative specimens found by inspection work in the provinces and in the City of Manila, as well as those intercepted by plant quarantine inspectors and those received from other employees of the Bureau and outsiders who consulted the Plant Pests Control Division for advice as regards control measures, are properly preserved, labeled and recorded.

A list of the Bureau's insect collection at the Entomology Laboratory at Singalong is being prepared and the corresponding specimens properly identified so as to aid those who desire to use the collection.

Riker mounts of the many major and minor pests of the Philippines, with accounts of their life histories and habits and control measures, are being prepared.

A collection of diseased plant specimens is also being made to go with the mycological specimens in the herbarium of the Bureau of Science, which will serve as a valuable nucleus for a working pathological herbarium and will be further enlarged as the pathological work of the Bureau of Agriculture progresses.

Specimens submitted by plant quarantine inspectors.—The identifications made of insect pests and plant diseases specimens submitted by the plant quarantine inspector are given under the caption "Pathological and Entomological Interceptions."

SURVEY AND ERADICATION OF COCONUT BUD-ROT AND OTHER DISEASES AND PESTS OF COCONUT

As no Insular coconut bud-rot inspectors could be appointed owing to lack of funds for salaries of temporary and emergency employees, authority was secured by the Bureau of Agriculture from the Secretary of Agriculture and Natural Resources on December 26, 1924, to allot to certain provinces out of the "Contributions and Gratuities Funds" of the Plant Pests Control Division the amount indicated elsewhere in this report.

In addition to the work of eradicating coconut bud-rot, inspection was also made of the groves for the presence of palm weevils, coconut beetles and other pests, and of diseases.

TABLE IB.—Showing the number of trees inspected and the number of coconut bud-rot cases found and destroyed during the year 1925

Province and municipality	Number of trees inspected			Number of bud-rot cases	
	Bearing	Not bearing	Total	Found	Destroyed
LAGUNA					
Alfonso .. .	406,975	124,478	531,453	423	423
Alifan .. .	273,763	82,717	356,480	1,190	1,190
Alapadana .. .	380,254	74,424	454,678	96	96
Alayay .. .	363,931	166,280	530,211	234	234
San Andres .. .	1,815,170	387,423	2,202,593	410	380
San Juan .. .	84,734	16,178	100,912	116	116
San Jose .. .	313,125	66,715	379,840	78	78
Total .. .	2,764,984	768,375	3,533,359	947	947
SAMARANG					
Barangay .. .	849,323	537,977	1,387,300	964	654
Municipality .. .	62,878	76,796	139,674	23	23
Total .. .	912,201	614,773	1,526,974	987	677
CAVITE					
Alfonso .. .	97,899	52,753	150,652	905	648
Alifan .. .	38,496	43,396	81,892	160	160
Alapadana .. .	7,915	1,230	9,145	57	57
Alayay .. .	267,781	360,780	628,561	2,540	2,540
San Andres .. .	4,66	12,06	16,726	276	276
San Juan .. .	17,164	22,374	39,538	276	276
San Jose .. .	121,499	110,990	232,489	280	280
Total .. .	401,490	564,308	965,798	2,649	2,649
TAYBASAN					
Alfonso .. .	113,844	61,731	175,575	360	360
Alifan .. .	71,788	38,917	110,705	160	160
Alapadana .. .	61,456	4,478	65,934	9	9
Alayay .. .	130,426	90,428	220,854	900	900
San Andres .. .	14,780	3,960	18,740	3	3
San Juan .. .	142,387	87,731	230,118	136	136
San Jose .. .	73,585	28,370	101,955	56	56
Alifan .. .	274,817	122,478	397,295	797	797
Alapadana .. .	68,811	16,830	85,641	116	116
Total .. .	808,685	489,175	1,297,860	2,447	2,447
BATANGAS					
Alfonso .. .	29,896	62,134	92,030	73	73
Total .. .	29,896	62,134	92,030	73	73
Grand total .. .	3,152,124	1,001,475	4,153,599	11,043	11,143

TABLE XXIII.—Showing survey of other coconut pests and diseases during the year 1925

Province	Other pests and diseases		
	Bud rot	Black leaf	Stem blight
Alfonso .. .	34,408	27,031	360
Alifan .. .	3,247	1,280	160
Alapadana .. .	1,247	3,400	620
Alayay .. .	1,247	3,400	620
San Andres .. .	1,247	3,400	620
San Juan .. .	1,247	3,400	620
San Jose .. .	1,247	3,400	620
Total .. .	39,249	39,741	2,440

SURVEY AND ERADICATION OF ABACA DISEASES AND PESTS

This work is a continuation of that started last year.

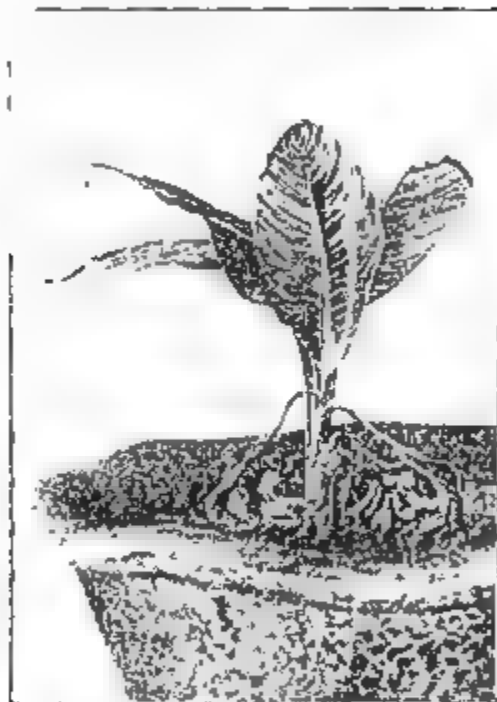
Since the two Los Baños graduates who were assigned to this work transferred to other Bureaus of the Government, the survey work has been left to the two junior plant inspectors, one of whom is still in Albay and the other in Davao, which makes progress slow.

Inasmuch as the bunchy-top disease was found present in two municipalities of Tayabas Province—Sampaloc and Mauban—Administrative Order No. 45 was amended to include these two municipalities.

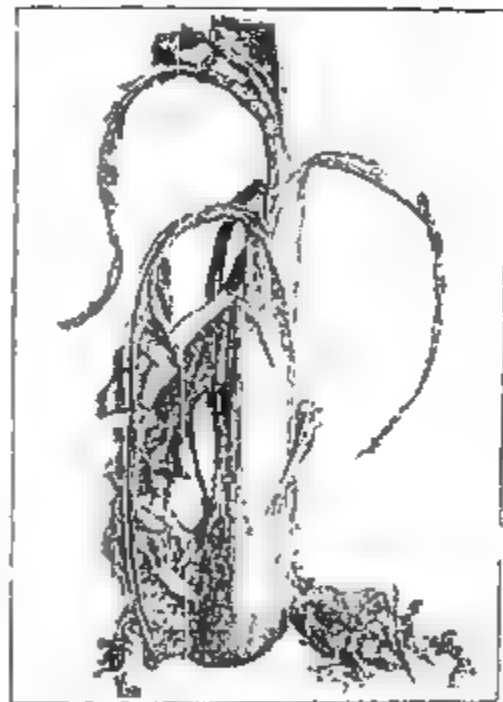
Cavite Province.—Reinspection of the two municipalities of Mendez-Núñez and Indang was done during the year. The same abaca diseases (heart-rot and bunchy-top) have done an immense amount of damage in all the plantations of these two municipalities, and in fact in the Province of Cavite as a whole. Rice, corn, coconuts, and vegetables are being grown instead.

Albay Province.—The survey in this province was started sometime in May, 1925, and about 100 barrios of the municipalities of Tabaco, Bagacay, Libog, Malunot, Malinas, Tiwi, and Daraga were surveyed during the year. The plantations are old and some are interplanted with coconuts. The varieties under cultivation are the black, red, white, Samina, Bagacayan, canton, and pacol. In some plantations there is more canton than abaca of the commercial varieties. Different kinds are planted together, as would be expected, in the plantations. Most of the plantations are hilly and the soil is sandy loam. In some places the growth of abaca is very poor due to the poor condition of the soil. The plantations of the municipalities surveyed were found free from heart-rot and bunchy-top. A few cases of attack by abaca weevils were noted in Tabaco. The varieties susceptible are canton and pacol and the planters were advised to eliminate these and cultivate only the commercially known varieties, such as the red, black and white. They were also instructed in modern methods of cultivation to produce vigorous, healthy plants and as to better methods of stripping in order to produce finer fibers that would command higher prices.

Davao Province.—The survey and eradication work was continued during the year. Fourteen municipalities, comprising a total of 74 barrios, were surveyed. The municipalities infested with abaca heart-rot were Davao, Santa Cruz, Malita, Mati, Lupon, Tagum, and Cambanogay, while two of the sites of Ta-



(a) Abaca plant infected with mosaic disease



(b) Top portion of a banana plant affected by bunchy-top

gum; namely, Bud-bud and Magapo, were affected with bunchy-top disease. The varieties found most susceptible to heart-rot were Buñgalon, Putian, Labuton and Tonggongon. The Maguindanao variety was the only found susceptible to bunchy-top. The abaca root weevil was found in almost all the municipalities inspected, especially in the plantations where the heart-rot is present. The usual control measures were recommended to the planters.

TABLE XXIV—Showing the provinces so far surveyed and affected by one or both diseases

Province	Bunchy-top	Heart-rot
Albay	Not present	Not present
Batangas	Present	Do
Camarines Norte.	do	Do.
Camarines Sur	do	Present
Cavite	do	Do.
Davao	do	Do
Laguna	do	Do
Leyte	do	Do
Samar	Not present	Not present
Tayabas	Present	Not present
Zamboanga.	Not present	Present

From Table XXIV, it will be seen that of all the provinces (so far surveyed) growing abaca to a more or less extent, four provinces, viz.: (1) Cavite, (2) Davao, (3) Laguna, and (4) Leyte were found affected by both the bunchy-top and the heart-rot diseases; four provinces, (1) Batangas, (2) Camarines Norte, (3) Camarines Sur, and (4) Tayabas infested with bunchy-top alone; and two provinces (1) Samar and (2) Zamboanga infested with heart-rot alone. Albay is reported free from either trouble.

SURVEY AND ERADICATION OF THE PARASITE *LOREANTHUS* AND BARK ROT DISEASE OF CITRUS

Loranthus, a flowering plant parasite, was reported present on many citrus and other plants in Batangas Province, where some mandarin orchards are very badly if not fatally infested. It is also found in Nueva Ecija, Cavite, and probably in other provinces where citrus trees are growing. The seeds of the parasite are carried by the wind and germinate on the branches and twigs of trees, the roots penetrating through the bark to the cambium layer, deriving all their sustenance from the host.

It also preys on other trees—the lumbang, mango, chico and lansones, for example. It is easily recognized among the foliage and the most practical remedy is to examine each tree in the

orchard and prune off and burn the branches attacked by this parasite.

Arrangements were made, especially with the provincial officials of Batangas to coöperate with field men of this Bureau assigned to the work of eradicating the parasite completely, as if this is not done, it will, in time, kill all the citrus trees in Batangas and wherever else it may be found. The Province of Batangas adopted, through the recommendation of the Bureau of Agriculture, a sort of a provincial ordinance compelling the growers to eradicate this pest.

TABLE XXV.—Showing the number of municipalities surveyed and indicating the prevalence of *Loranthus* and bark-rot

Municipality and barrio	Number of surveys	Total number of trees inspected	Number of trees affected		Number of dead trees	Number of trees treated
			Loranthus	Bark-rot		
Batangas	196	6,587	122	852	23	58
Maio-Tomas	164	4,717	387	68	403	17
Sanlvar	332	11,552	2,470	2,800	140	1,167
Tanauan	702	30,230	5,553	1,586	1,030	2,036
Total	1,450	42,486	8,532	5,020	1,503	1,898

REMARKS.—The column "Number of Trees Treated" includes trees affected with both *Loranthus* and bark rot. The number of trees treated is less than the number affected because the test had not as yet been reported as treated at the time of writing this report.

ENTOMOLOGICAL AND PHYTOPATHOLOGICAL RESEARCH WORK

The principal researches on various insect pests and diseases reported last year have been continued, although the studies were necessarily interrupted by the large amount of routine and field inspection work that has been done.

ENTOMOLOGICAL

Insect pests.—Studies were continued on the cabbage caterpillar (*Crocidolomia dinotata*), and the citrus bark borer (*Agrius occipitalis*), and further observations made of grubs of the "toy beetle," *Leucopholis irrorata*. It is now known that the life cycle of the insect is about a year, and that there is only one generation.

Important data were obtained during the year on the common noctuid worms (*Prodenia litura* and *Spodoptera mauritia*) from field and laboratory observations, and further studies have been started on tobacco insects.

A special study is also being made of the mango twig borer (*Excolea capito*), an insect much complained about by mango tree owners, since it kills many twigs. Fragmentary yet valuable life history records of other insect pests were made.

Calcium cyanide as an insecticide.—The following results have been secured with cyanogas (calcium cyanide).

One-half to four teaspoonfuls of the granular calcium cyanide introduced into the nests of the common red ants (*Solenopsis geminata*) was found sufficient to kill the insects in all stages. The calcium cyanide dust also readily kills all the ants crawling on the surface of the soil. Undoubtedly it can be used for dusting seed-beds, tobacco seed-beds, for example, to kill the insects that steal the seeds.

It was also tried with success in the proportion of one pound to every 1,000 cubic feet against termites in one of the store-rooms of the Bureau of Agriculture. All rats and mice were also killed.

For white grubs (*Leucopholis irrorata*) it was found that 2 to 6 grams of the granular form of calcium cyanide injected about 15 centimeters from the base of each mango seedling about 10 centimeters into the soil was enough to kill the grubs without any apparent injury to the seedlings.

Beekeeping.—As stated in our annual report for 1924, there remained only one colony of Italian bees in December of that year. During April, May, and June, 1925, when the colony had considerably increased in size, three small colonies were raised from it. There are therefore at present four colonies at the Singalong Propagation Station, each with a young queen. No apparent growth of these colonies was noticed during the period from August to December due, in large part, to the typhoons and heavy rains and the scarcity of nectar-producing flowers.

PATHOLOGICAL

Experimental shed (Greenhouse).—During the year, a small bamboo shed, 9 by 4½ by 7½ meters, was built behind the new Chemistry Laboratory on the grounds of the Bureau of Science in which to keep plants for inoculation experiments.

Abaca diseases.—Field and laboratory experiments on heart-rot and root-rot (or bunched-top) diseases are still in progress.

Histological preparations were made from specimens of the Lawisid variety of abaca obtained from Almagro, Samar, affected by a disease supposed to be mosaic. This disease has never been reported on abaca in this country. Infection experiments have already been started and cross inoculations will soon be started.

Aside from the work on abaca diseases, biological research has been conducted on the deterioration of Manila hemp. All

phases of the experiments have already been completed and the necessary plates and figures made. The manuscript has already been submitted for publication in the Philippine Journal of Science.

Coconut diseases.—Field observations and laboratory experiments were conducted during the latter part of the year in an effort to discover the causal organism of a serious disease of coconut fruits known as nut-fall and find a remedy. Artificial inoculations of the different stages of coconut fruits with the fungi *Thielaviopsis*, *Phytophthora*, and *Gleosporium*, which were obtained from isolations made from diseased nuts, showed that *Thielaviopsis* and *Phytophthora* are both pathogenic, while *Gleosporium* proves to be only a mere saprophyte on diseased fruits. Repeated inoculation experiments with these fungi using two varieties of coconut fruits; namely, the purple and green varieties, apparently gave practically the same results, except that the purple variety showed a certain degree of resistance to the attacks of fungi.

In an effort to determine the identity of the fungus *Thielaviopsis paradoxa* causing the stem-bleeding of coconuts with that of the fungus *Thielaviopsis* obtained from diseased fruit, cross inoculations were made using stem-bleeding *Thielaviopsis* on different stages of coconut fruits. Apparently this gave positive results. Thus far the stem-bleeding fungus and nut-fall fungus seem identical, however, a more extensive study is necessary to prove that fact.

Fifteen coconut plants about one year old affected by coconut blight have been studied and isolations made from infected leaves. *Pyxidic* of the fungus *Phyllosticta* were found developing on the diseased spot. Lime-sulphur solution (1 part to 39 parts water) was administered twice at an interval of one month. This proved efficacious in controlling the disease.

Tobacco wilt disease.—Preliminary isolation and infection experiments were included in the report last year. Repeated inoculations made during the summer of 1925 showed better results. Of four kinds of tobacco, locally known as Pampano, Viacaya, Piniña, and Batoc, the latter two are more susceptible to the disease. In all isolation experiments a species of *Fusarium* is always obtained.

Further observations indicated that infection with the organism can be produced easily during hot weather when there is high temperature in the soil and heavy infection. Water seems to enable some of the plants to overcome the effect of the dis-



Caryocysts of the cut-worm species (Phaneroptera sp.)



Two points of Maple wood (left) and Red wood (right), showing incision with yellowish-brown clays.

ease. This has been frequently observed in the course of infection experiments. Wilting plants may become turgid and upright a few hours after watering. More infection experiments are to be tried in the summer of 1926 to verify many important points and a variety test for disease resistance will also be conducted.

Miscellaneous diseases.—Badly diseased specimens of papaya fruits (Plate IX, Fig. 1) were collected and photographed and isolations from them gave a species of *Colletotrichum* in the majority of cases. Preliminary infection experiments were made in the laboratory and all gave positive results. As to whether the organism causing this disease of papaya fruits is the same as that which causes anthracnose of other fruits such as the mango, avocado, etc., remains to be proved.

The atis (*Annona squamosa*) suffering from anthracnose disease (Plate IX, Fig. 2) has also been the subject of research. Isolation made from diseased material produced a species of *Colletotrichum*. To discover whether this is the conidial stage of the fungus (*Glomerella cingulata*) causing anthracnose of mango, avocado, etc., will take further study.

A serious foot-rot disease (Plate IX, Fig. 3), killing many ornamental plants, especially gumamela (*Hibiscus achizopetalus*), morado (*Graptophyllum pictum*), *Achalypa tricolor* and others, was studied in the laboratory and a fungus belonging to the genus *Nectria* was found constantly associated with the disease. It is probable that this is the cause of the trouble, but inoculation experiments have to be conducted in order to verify this.

A fungus disease occurred among the santol seedlings at the Singalong Experiment Station of the Bureau of Agriculture about the middle of the wet season. Isolation and inoculation experiments showed that the fungus responsible for this trouble was a species of *Phytophthora*. It is not unlikely that seedlings of other kinds of plant may be attacked by the disease, since Para rubber seedlings growing in the neighboring seed-beds showed similar symptoms. Further investigations relating to the disease are in progress and a more detailed account of the results of isolation and infection and remedial experiments will be published later.

An investigation has been started concerning two new diseases affecting Agave plants. One of these is characterized by yellow spots and the other by a blight. The former occurs on both maguey (*Agave cantala*) and Sisal (*Agave sisalana*), while

the latter affects the henequen hemp (*Agave fourcroydes*). Various fungi and bacteria have been isolated from specimens of the yellow-spot disease, but none of them has been found so constantly associated with the diseased material as to induce the belief that it is the pathogene responsible for the trouble. Preliminary inoculations with these organisms have given negative results. From the diseased specimens of henequen hemp a fungus belonging to the genus *Helminthosporium* has been isolated and inoculation tests will be made to find its relation to the disease.

ANIMAL HUSBANDRY DIVISION

Conditions were in general favorable for the work of this division, there having been no big typhoons or severe outbreak of disease.

The year showed a marked increase in the already big demand for the pure bred and selected grade animals—horses, cattle, goats, pigs, and poultry and their eggs. There is always a waiting list for every kind of animal raised under the supervision of this division and, needless to say, more pure bred animals should be imported not only to meet this demand but to renew the blood and prevent inbreeding.

A contributing cause was doubtless the visits made to piggeries and poultry yards by the technical personnel, who gave timely advice as to breeding, proper care, feeding management and sanitation and demonstrated the caponization of cockerels and the castration of pigs for owners.

IMPORTATIONS AND PURCHASES

Animals imported this year for the Bureau were:

2 Arabian stallions	P2,473.80
1 Welsh pony	1372.66
1 Ayrshire bull	1,323.38
2 Nubian goats	997.91
1 Shropshire ram	322.04
3 Pure-bred pigs	672.00
18 Pure-bred chickens	528.00
12 Squab Homer pigeons	75.00
Total	7,704.78

Aside from these there were purchased during the year, 10 horses valued at P2,835 for breeding purposes; 339 head of cattle worth P20,670.80; and 15 head of carabao for P1,215 for the production of virus; and 4 horses costing P964 for work purposes. For the Philippine Health Service the Bureau bought

10 carabao valued at ₱1,430 and 6 rabbits for ₱30; for the Province of Bukidnon, it imported an Arabian stallion costing ₱1,205.65; and also one of the same value for the Province of Zamboanga; while a horse worth ₱150 was purchased under Act No. 2758.

PUBLIC BREEDING.

Practically every effort made this year to extend the public breeding work to more remote towns has been unavailing due largely to the prevailing shortage of funds. The only new public breeding work done was in the non-Christian regions. The main difficulty in the already established stations is the distance the owners of live stock would have to travel to bring their female animals to these centers.

Number of sirens covered during the year

Kind	Number of sires	Number of sirens	Number of offspring	Estimated value
Stallion	14	400	202	₱14 100 00
Don	11	300	217	17 140 00
Goat	34	400	1,873	16 720 00
Sheep	1	10	10	20 00
Pig	0	0	110	110 00
Total	60	1,110	2,412	₱66 460 00

Estimated increased values based on market prices.

Horses, each	₱60.00
Cattle, each	50.00
Pigs, each	10.00
Sheep, each	2.00
Goats, each	2.00

This shows a market increase in the number of foals and kids over the previous year, though a decrease in pigs, lambs, and calves.

The Santa Barbara Station, Indang Farm School, the Bukidnon, Central Luzon, and Pangasinan Agricultural Schools, and the College of Agriculture, realized a fair income from the sale of the offspring of the original stocks besides supplying the students' mess with meat and eggs. The income of these stations as well as whatever is raised or produced goes to the institution maintaining the animals. Standing of cooperative stations:

Number of cooperative stations at beginning of year.	20
Number of cooperative stations at closed	21
Number of cooperative stations at existing	9

The division closed its Poultry Swine Station in La Paz, Davao, because of the prevalence of contagious parasitic diseases on the premises.

The total income of this division from the sales of live stock and other products of its stations amounted to ₱22,287.33.

ALABANG STOCK FARM

The work of the Alabang Stock Farm, which consists of the raising of pure bred and selected animals of various breeds for sale to the public and for distribution to public breeding stations; the acclimatization of imported live stock; the conducting of experiments on feeds, feeding and breeding, and the manufacture of mixed feeds for its animals and other stations, was generally satisfactory barring the death among the sheep and goat herds towards the end of the rainy season, due to a virulent attack of stomach worms. This was, however, controlled by dosing the animals with copper sulphate solutions in much the same manner as it is done in South Africa.

The importation of an Ayrshire bull and a Welsh pony stallion from Australia and of two Arabian stallions from India made the horse project and cattle project once more important in this farm. The end of the year finds all mares and cows pregnant or with young.

A marked increase has been recorded in the number of visitors to this farm and educational excursions to it have become an established custom among the high institutions of learning in Manila.

The records as to the following very interesting breeding, crossbreeding, feeding and other experiments are to be published in detail in the Philippine Agricultural Review.

1. Comparison of melonsses, cassava and corn with tiqui-tiqui and copra meal as basal rations for the fattening of pigs.
2. Comparison of the egg production between laying hens on free range and those confined.
3. Comparison of the egg production between laying hens fed a mash feed with whole grains and those fed only a mash feed.
4. Commercial hog and chicken raising.
5. Determination of moisture lost during incubation of chicken eggs.
6. Comparative study of the growth between caponized and uncaponized cockerels.
7. Comparison of the egg production between Indian Runner and native ducks (second set of experiments).
8. Trial feeding of melonsses to young cows.
9. Artificial brooding of chicks during different seasons of the year.



Plants of the Waters." February 20, 1886. In *Journal of the New York State Academy of Sciences*, Vol. 1, No. 1, p. 1.

10. Comparison of baby chicks raised on places known as fowl sick and on uninfected places.

11. The crossbreeding of a jackass to grade and native mares.

12. The determination of the amount of fleece produced yearly by the different breeds of sheep at the farms.

13. The crossbreeding of an Ayshire bull to Indian Nellore and Fuga cows (still going on).

14. Crossbreeding of chickens—a set of different experiments (still going on).

From sales of animals alone this station is credited ₱12,140.74, for those transferred to other stations ₱9,377.26.

LA CARLOTA EXPERIMENT STATION

Livestock raising in this station was successful in general, the pasturage being good and the weather conditions favorable due to the even distribution of rainfall throughout the year.

Cattle-raising is the main work of this station. The herd at the present time consists of 130 pure Indian and 273 grade cattle including 54 head of carabao. Sheep and goats, poultry and pigs are also raised on a small scale to meet the public demand.

Most of the feed is raised at the station with the exception of tiqui-tiqui, which comes from Alabang Stock Farm.

The station sold stock this year valued ₱6,654.08.

Various experiments were conducted this year on this farm. These were:

(1) Castration of cattle and carabao at different ages to determine the best age at which to castrate—only Indian grade bulls undesirable for breeding purposes were used. Age castrated, at 6 months, 1 head; at 1 year, 7 head; at 1½ years, 7 head; at 2 years, 5 head; at 2½ years, 8 head; at 3 years, 3 head. Observations made this year are that young castrated animals fatten more easily than old ones and the older the animal the more pronounced and apparent is the neck development.

(2) Milk testing of Indian and grade cattle and carabao cows.

(3) Crossing White Leghorn with native hens.

One interesting result so far has been that all the white chicks turned out to be males and the rest were barred to some extent, whether male or female. The details will be published in full in the *Philippine Agricultural Review* as soon as the experiments are completed.

CEBU BREEDING STATION

The importance of this station grows from year to year with the increase in the number of livestock it raises and the larger number of persons who become acquainted with its work.

Hog cholera broke out among the pigs about the middle part of the year; but the timely application of anti-hog-cholera serum quickly controlled the outbreak.

The public breeding station is credited with 111 services and 277 offsprings for the year and its income from sales of its stock was ₱1,052.69.

BATANGAS BREEDING STATION

The upgrading of horses in this station was more extensive this year than in 1924. There are seven public breeding stations, and they rendered 835 services on 268 mares. The number of foals reported for the year was 98.

The upgrading of cattle is reported by this station as giving good results. The three Indian bulls are rendering good services in different herds in Batangas and 65 calves are credited to them.

The breeding boar served 39 sows and has 189 pigs to his credit this year.

The animals are in good condition.

The crossbreeding between the Rhode Island Red and Banaba chickens which was started last year was continued this year and will be reported on in full as soon as the strain becomes established.

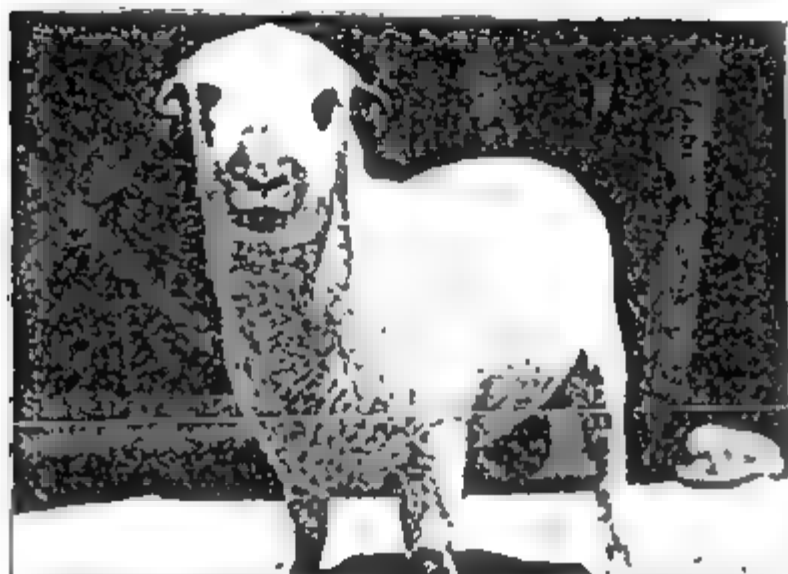
The income from sales of pigs, poultry and eggs and the fees collected for the services of the stallions amounted to ₱523.20.

LA PAZ POULTRY-SWINE STATION

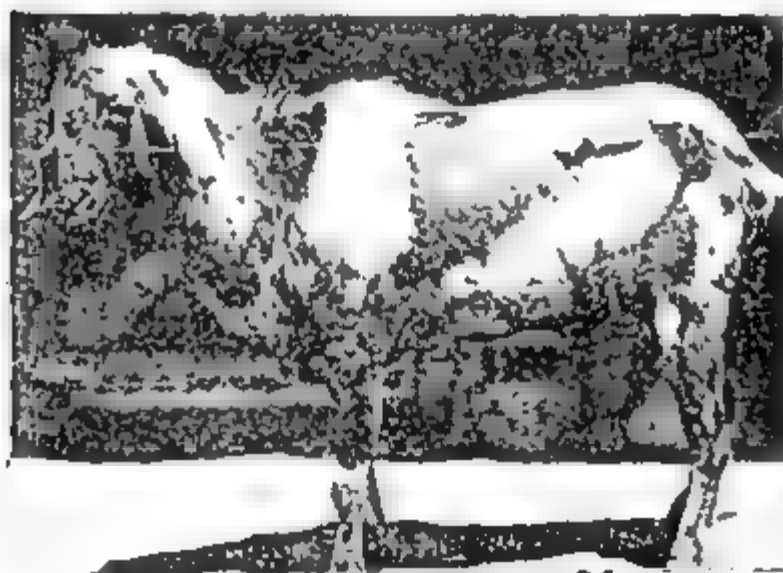
This station was closed in the middle of the year due to the prevalence of animal diseases on its premises. The animals and poultry were sold for ₱369.30—except the Indian bulls, which are now in different herds in the Province of Iloilo.

PANDACAN

Here the animals are kept temporarily when for any reason awaiting transportation. It is also a quarantine place for animals; and stallions and boars are also kept here for public breeding for the benefit of the city people. Rhode Island Red-Cantonese chickens are raised, besides a few goats, pigs and turkeys to keep the laborers busy. These crossbred chickens are under observation also as a check on the cross breeding experiments of the Rhode Island Red-Cantonese done in other stations. Sales from stock amounted to ₱76.



140 Superior Merinoes from "Crosby" Flock No. 424. From the United States one of the best of the Group's are at the Alabama Stock Farm.



141 "The Black," Property No. 1023. A selected subject from California, U. S. A., one of the best of a flock of goats at the Alabama Stock Farm.

SAN ANTONIO POULTRY-SWINE STATION

Early in the year the animals in this station were transferred to San Narciso, a town north of San Antonio, as the latter town would not provide funds for the rent of the land. The free public breeding is thus now benefiting the San Narciso people. The Indian bull is rendering good service for both towns, being credited with 33 calves, while the boars are credited with 27 services and 141 pigs. The income from sales amounted to ₱206.32.

ORIENTAL NEGROS BREEDING STATION

This station was not successful in producing forage and grain crops due to heavy rains this year. General repairs were made on the animal sheds. The shortage of funds for labor provided by the province hindered the progress of the work in general.

This station keeps a public breeding stallion, bulls, boars, a ram and a billy goat, besides raising pigs and chickens. The stallion was only sent to that station recently. The three Indian bulls are in different herds and are credited with 89 calves for the year; the boar with 22 services and 80 pigs, the ram with 19 lambs and the billy goat 45 kids.

The income from the sales, amounting to ₱52, is credited to the province.

Some feed is purchased locally to supplement the forage and grain crops raised in the station.

LARENA POULTRY-SWINE STATION

This station was established in the Subprovince of Siquijor and is maintained by the subprovincial government. Pigs and chickens are being raised for sale and there is a boar for public breeding.

BAYOMBONG CATTLE BREEDING STATION

Cattle raising and the loaning of Indian bulls to cattle owners for the upgrading of their native stock are the activities of this station. Four Indian bulls were loaned this year. These are credited with 54 calves which is 32 more calves than that reported for 1924. The number of cows going with these bulls was 197 as against 178 head in 1924.

During the year this station received a trio of sheep and one riding horse. The number of cattle at the end of the year is 84, and the increase 7 head after deducting 7 deaths and 7, sold for ₱1,259.

Close observations were begun this year to determine the growth of Indian cattle, appearance of teeth, time calves begin to milke and other pertinent data as a basis for an article for publications on Indian cattle.

VETERINARY DIVISION

ADMINISTRATION

Importation from foreign ports.—During 1925 there arrived at the port of Manila, 8,128 cattle from Australia; 1,301 cattle and 288 carabaos from Phnom-Penh, French Indo-China; 2 head of cattle from Japan and 1 from the United States; 544 carabaos arrived at Iloilo from Phnom-Penh. This constitutes a decrease of 670 cattle and 1,968 carabaos as compared with the figures for 1924.

Interisland shipments.—There arrived at Manila from inter-island ports 11,660 cattle as compared with 14,886 during the preceding year. Carabaos numbered 2,089, an increase of 196 from 1924.

Inspection for which fees were collected.—A total of 148,258 animals of all kinds were inspected upon arrival at Manila, for which fees amounting to ₱20,645.05 were charged and collected. Of these animals, 121,524 were swine.

Postmortem inspection in Abatnang abattoir.—There were 181,390 animals of all kinds inspected of which 130,412 were passed for food and 978 condemned. The number slaughtered includes 118,768 swine.

Postmortem inspection in Pandacan matadero.—Seven hundred and seven (707) animals were inspected and slaughtered at this matadero in 1925, of which 3 were condemned and 704 passed for food.

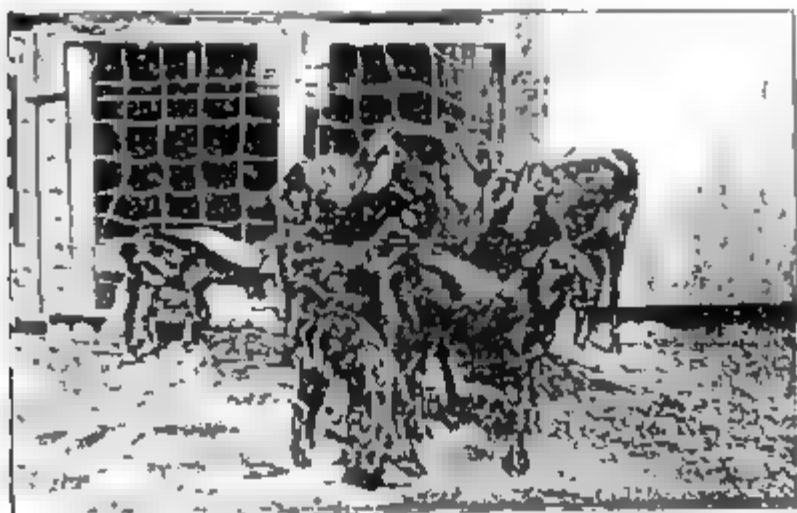
Postmortem inspections in Sisiman matadero.—At Sisiman 8,846 Australian cattle were slaughtered of which 130 were condemned and 8,716 passed for food.

COMBATING OF ANIMAL DISEASES

Rinderpest.—During the year there were reported 14,148 cases of rinderpest and 10,747 deaths from this disease. This compares favorably with the 19,599 cases and 16,932 deaths in 1924. The provinces infected at one time or another during the year were Bulacan, Cagayan, Capiz, Cavite, Cebu, Ilocos Sur, Iloilo, Isabela, Laguna, La Union, Mountain Province, Nueva Ecija, Nueva Vizcaya, Occidental Negros, Oriental Negros, Pampanga, Pangasinan, Rizal, Tarlac, and Taybas.



(a) A herd of 200 sheep and 40 goats owned by Mr. William Watson, Tule, Colorado Negro. The old branching corral is now used for sheep for live sheep and goats.



(b) Three female goats with their kids. Adams Stock Farm.

At the beginning of the year there were 34 municipalities infected in 11 provinces and on December 31, 1925, there were 27 infected towns in 11 provinces. There were 197 outbreaks of rinderpest during the year, counting each time a municipality was taken up as infected or reinfected as a separate outbreak.

Ilocos Sur, La Union, and Mountain Province comprised the new territory invaded by the disease during the year. The first town infected in La Union Province was Rosario, near the boundary of Pangasinan. The disease ran through the whole length of the province, the infection apparently traveling along the hills and finally infecting Tagudin, the southernmost town of Ilocos Sur. These regions had not been infected to any considerable extent since 1912 and the toll taken by the disease was rather heavy by reason of the large number of susceptible animals that have grown up since the great epidemic over ten years ago.

At this writing¹ Ilocos Sur has been completely freed from the disease, La Union and the Mountain Province are rapidly being cleaned up. In the latter province only Bagulo suffered considerable losses.

The infection did not go further north than Tagudin and one or two barrios of the next municipality, Santa Cruz, adjoining Tagudin, because of the rigid quarantine established and the judicious employment of the rinderpest vaccine at Tagudin. These two means in combination are responsible for the highly satisfactory results obtained. The Constabulary soldiers employed in this quarantine numbered about three hundred officers and men. A quarantine cordon was established well beyond the infected territory along the Santa Cruz River. All the townships, barrios, and sitios between this dead line and the Amburayan River from the coast to the hills were guarded by soldiers, so that there was practically a complete immobilization of animals in the whole zone before and some time after the vaccination was done. Some difficulty was experienced with the hill animals as they were in a semi-wild state and not until it was announced that the loose animals in the hills would be shot did the owners and caretakers make determined efforts to bring them in and keep them tied up. However, no actual shooting was done, as the warning sufficed.

The major part of the forces and equipment of the Veterinary Division were employed in this campaign, and it was fortunate that the rinderpest infection elsewhere was on the wane, as that permitted the necessary concentration of personnel and equip-

¹ January, 1926

ment at that point. The campaign at Tagudin lasted from July 29 to December 31, or about five months.

The following table gives the number of rinderpest cases and deaths by three month period during 1925:

TABLE XXVI.—*Rinderpest cases and deaths by quarters*

	New cases	Deaths
First quarter	2,391	2,316
Second quarter	4,130	3,743
Third quarter	2,544	4,388
Fourth quarter	1,372	961
Total	10,437	10,408

Rinderpest vaccine.—This product was used extensively in the Provinces of Pangasinan, Ilocos Sur, and others, as can be verified elsewhere in this report. It has given satisfactory results, but where the infection is severe, it was found that as much as five injections were necessary to confer a strong enough immunity to ward off infection.

Immunization.—As in previous years no money was appropriated to reopen the stations for simultaneous immunization against rinderpest. However, carabao and cattle were immunized by this method at the Pandacan Quarantine Station at cost to owners.

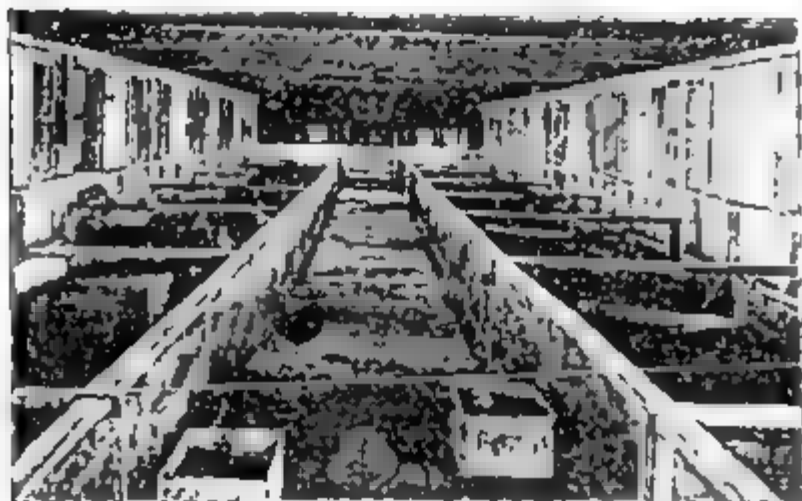
Anthrax.—No epidemic of this disease made its appearance during the year, but there were minor sporadic outbreaks in the Provinces of Bataan, Bulacan, Nueva Ecija, Pampanga, Pangasinan, and Tarlac which were promptly dealt with by vaccination. A total of 691 cases and 658 deaths were registered.

Following is the number of animals vaccinated against anthrax in the above-mentioned provinces:

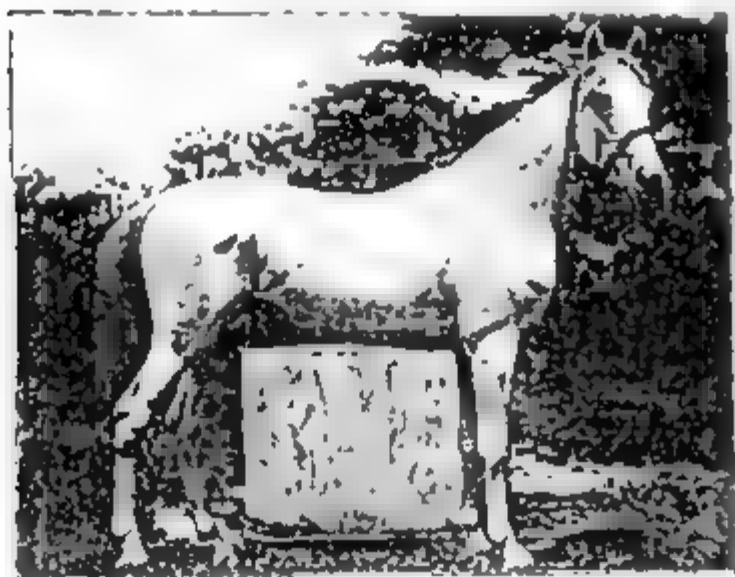
Bataan	126
Bulacan	3,188
Nueva Ecija	12,890
Pampanga	1,027
Pangasinan	25,254
Tarlac	8,756
Total	42,842

Septicæmia hæmorrhagica.—Sporadic cases were reported in the Provinces of Albay, Bohol, Camarines Norte, Camarines Sur, Cebu, Mountain Province, and Sorsogon.

Contagious bovine pleuro-pneumonia.—As previously experienced a few chronic cases were discovered now and then in



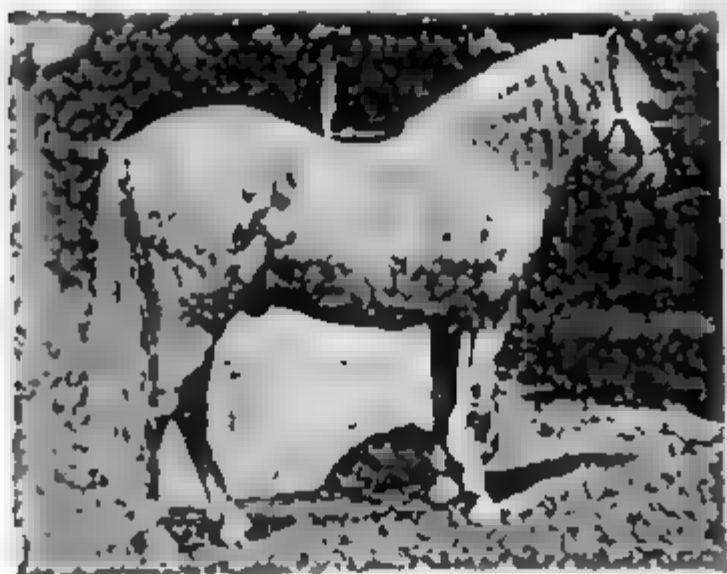
(a) The interior of the breeding house of the Arabian Sheep Farm, where skins are kept after they are taken from the shepherds



(b) "Shahr." Stallion No. 705. An Arabian stallion from India which is now at the Egyptian Breeding Station for public breeding service



(a) "Nightingale King" Property No. 724. An American pointer from India now at the National Stock Farm for breeding work.



(b) "Nightingale Queen" Property No. 725. A Welsh pony pointer from America now at the National Stock Farm for breeding work.

the various shipments of Australian cattle slaughtered in Sisiman slaughterhouse.

Surra.—Small outbreaks were reported in Camarines Sur, Cagayan, Mountain Province, Sorsogon, and Mindoro during the year. All infected animals were slaughtered.

Glanders.—None reported.

Contagious abortion.—None reported.

Foot-and-mouth disease.—Two outbreaks were reported during the year. One in Cotabato and another in Bukidnon. Relatively few deaths occurred in these, mostly among sucking animals.

VETERINARY RESEARCH LABORATORY

The activities in this Laboratory consisted mainly of diagnostic work, the manufacture of rinderpest vaccine and antirinderpest serum, the immunization of work animals against rinderpest by simultaneous method, and investigation to find the best method of manufacturing rinderpest vaccine. The vacancy created by the resignation of Dr. Wm. H. Boynton, pathologist, is still open. The following summary for the year gives the activities of the Laboratory.

Summary for the year 1935

I

(a) Number of animals used for vaccine:

281 Native cattle	₱15,808.85
2 Native carabaos	150.00
2 Private cattle	120.00
285 Total	15,578.85

(b) Number of animals used for testing vaccine:

63 Native cattle	₱3,476.65
11 Native carabaos	871.00
74 Total	4,347.65

(c) Disposition made of animals used for testing vaccine

36 Cattle bled to death for serum	₱1,959.85
5 Cattle killed for vaccine	279.30
11 Cattle died	624.35
2 Cattle sold	169.65
8 Cattle still alive	444.00
5 Carabaos died	376.00
6 Carabaos still alive	495.00
74	4,347.65

Summary for the year 1925—Continued

(d) Animals used in making antirinderpest serum:

57 Native cattle..... ₱8,635.65

II

Amount of rinderpest vaccine made..... 1,445,280

III

TABLE XXVII.—Number of animals vaccinated by provinces

Province	Number of animals vaccinated					Total
	First injection	Second injection	Third injection	Fourth injection	Fifth and sixth injections	
Batangas.....	83	20	23			126
Bulacan.....	2,338	2,350	1,684			6,372
Cavite.....	10	10				20
Ilocos Sur.....	3,527	3,329	9,178	4,778	3,834	41,666
La Union.....	10,239	18,213	10,080			38,532
Manila.....	23	8	7			38
Mountain Province.....	78	81	22	30		211
Pampanga.....	5,314	4,883	6,978			17,175
Pangasinan.....	38,342	34,408	33,767	63		106,580
Rice.....	28	20	2			50
Tarlac.....	2,644	2,678	3,551	528	183	9,584
Total.....	44,644	68,890	64,604	5,387	4,017	210,942

TABLE XXVIII.—Number of animals vaccinated by months

Months	Number of animals vaccinated					Total
	First injection	Second injection	Third injection	Fourth injection	Fifth and sixth injections	
1925						
January.....	2,779	2,919	2,178			7,876
February.....	3,823	1,591	1,045			6,459
March.....	9,671	12,784	11,477	13		33,945
April.....	4,389	3,913	2,802			11,104
May.....	18,170	10,264	9,089	63		37,586
June.....	6,378	6,044	8,556			21,038
July.....	10,224	11,067	8,283			29,574
August.....	2,680	2,682	4,774			10,136
September.....	5,351	5,290	4,884	167	52	15,744
October.....	6,790	9,342	9,321	1,467	746	18,666
November.....	2,281	2,854	4,595	2,687	4,060	17,477
December.....	1,064	1,184	1,244	1,028	2,869	7,389
Total.....	65,684	68,890	64,604	5,197	6,086	210,361

IV

TABLE XXIX.—Forage used during the year

Months	Green feed (V. R. L.)	Green feed (P. Q. S.)	Copra meal	Alfalfa feed	Rice straw
1925	Kilos	Kilos	Kilos	Kilos	Kilos
January.....	14,103	8,073	426	800	8,425
February.....	19,814	7,092	867	748	7,428
March.....	20,362	9,811	496	412	11,741
April.....	16,074	14,853	461	719	2,027
May.....	22,785	15,695	505	1,002	3,500
June.....	20,180	31,902	328	1,045	8,515
July.....	31,147	14,395	722	703	7,864
August.....	22,072	12,540	689	744	2,392
September.....	11,680	10,895	733	761	6,184
October.....	11,370	18,399	485	479	4,401
November.....	12,690	13,721	775	795	7,165
December.....	13,415	10,089	794	885	5,329
Total.....	227,637	168,862	7,557	8,629	69,262

TABLE XXX.—Value of feed used during the year

	Kilos	
Green feed (grown at V. R. L.)	227,529	₱6,825.87
Green feed (grown at P. Q. S.)	168,242	5,050.86
Copra meal	7,577	408.35
Mixed feed	8,989	888.00
Rice straw	69,242	1,175.91
Total		<u>14,349.80</u>

Of this amount 395,801 kilos of green valued at ₱11,876.73 was grown at Pandacan Quarantine Station and Veterinary Research Laboratory.

V

Serum manufactured and used:

From native cattle		
Manufactured	cc.	193,000
Sent out	cc.	71,000
Used	cc.	107,000
Balance on hand	cc.	<u>15,000</u>

VI

Number of animals tested (immunized at Poon Pohn):

Indo-Chinese cattle	760
Indo-Chinese carabao	<u>288</u>

VII

Number of animals immunized:

Indo-Chinese cattle	3
Native cattle	54
Native carabao	<u>146</u>
Total	<u>203</u>

VIII

Number of dogs examined for hydrophobia:

Positive	22
Negative	11
Doubtful	10
Putrefied	<u>7</u>
Total	<u>50</u>

ILOILO QUARANTINE STATION

This station received 544 carabao from French Indo-China in 1926. The sheds in the station are in great need of repairs.

SOSIMAN YATADERO

During the year 8,128 head of Australian cattle were received at this station for slaughter. The stockyards and slaughterhouse are in great need of repairs and alterations. The installation of a more adequate system of water supply is also needed. In view of the fact that it has not been definitely decided whether or not the importation of beef is to continue indefinitely, all orders for repairs and alterations are held pending.

TABLE XXXI.—*Origin of cattle and carabao arriving at port and City of Manila during fiscal year from January 1 to December 31 1925*

Port of embarkation	Number arrived		Number slaughtered		Number shipped		Number of deaths	
	Cattle	Carabao	Cattle	Carabao	Cattle	Carabao	Cattle	Carabao
Philippines	11,680	2,028	10,885	7	419	1,871	31	43
Form-Penh.	1,201	298	1,782	1	298	377		
Australia	8,128		8,848		8		47	
United States	1				1			
Japan	2							
Hongkong								
India								
Total	21,002	2,326	21,615	8	726	2,248	78	86

TABLE XXXII.—*Annual report of livestock inspection port and City of Manila from January 1 to December 31, 1925*

Kind of animals	Number arrived	Number slaughtered	Number shipped	Number of deaths
Cattle	21,002	21,615	726	78
Carabao	2,326	8	2,248	86
Horses	1,455		188	180
Hogs	121,524	117,792	310	8
Goats	1,213	1,085	6	
Sheep	296	64	14	
Others	302	1	70	
Total	148,220	139,565	2,455	260

TABLE XXXIII.—*Annual report of inspection and collection, port and City of Manila from January 1 to December 31, 1925*

Kind of animals	Number arrived	Rate per head	Fees collected	Philippine ports	Foreign ports
PARIWACAN					
Yardage			P1,445 65		
Cattle	21,002	P0.20	4,210 40	11,680	9,438
Carabao	2,326	40	930 00	2,289	368
Horses	1,455	1.00	1,455 00	1,434	23
Hogs	121,524	10	12,152 40	121,524	
Goats	1,213	20	242 60	1,213	
Sheep	296	20	59 20	296	
Others	302	40	120 80	58	244
Total	148,220		20,645 84	139,565	9,969

NOTE.—Thirty-one head of cattle admitted free on arrival, property of the Civil Government. One hundred fifty-four horses and 80 mules admitted free on arrival, property of the United States Army. Two hundred eighty-three mules and horses admitted free on arrival, property of the United States Army.

TABLE XXXIV.—Bureau of Agriculture annual report of inspection in *Ascaris* metacere for 1925

Kind of animals		Pound for food	Condemned	Total
Cattle	native	15,807	6	15,813
Cattle	Ascaris	2		2
Cattle	From Paris	657		657
Carabao	native	7		7
Swine	do	117,781	972	118,753
Goats	do	1,382		1,382
Sheep	do	44		44
Deer	do	1		1
Total		128,413	978	129,391

PARTS CONDEMNED

Cause of condemnation	Cattle		Swine		Goats	Sheep
	Carcass	Parts	Carcass	Parts	Parts	Parts
Pound and	6		0			
Congruence		4,024		59,536	1,484	87
Tuberculosis	1		23	203		
Leptospirosis		779		8,001	331	14
Pulver		1,718				
Ascaris		2,446				
For		338		2,978	170	4
Cervitis		4		11,965	121	3
Necrosis		388		43	822	50
Bruella		6				
Brucella-pneumonia		10				
Brucella		417				
Alumina		3		0		
Ascaris		1		1		
Distomatosis		1				
Intestinal			9	1,122		
Kidney worms			4			
Necrosis			50			
Cholera			500			
Cysticercosis						
Total	8	11,303	776	84,007	2,628	148

NOTE:

Cattle, native	1,114,379
Cattle, Ascaris	796
Cattle, From Paris	65,813
Carabao, native	1,101
Total	1,211,389
Population	3,736
For	128

TABLE XXIV.—Bureau of Agriculture annual report of inspection in *Prudon* metacere for 1925

Kind of animals		Pound for food	Condemned	Total
Cattle	native	78		78
Cattle	From Paris	628	3	631
Carabao	do	1		1
Total		707	3	710

PARTS CONDEMNED

Causes of condemnation	Cattle	
	Carcasses	Parts
Tuberculosis	2	49
Congestion		411
Emphysema		8
Dilatation		100
Bruised		17
Inflammation		10
Suppurative inflammation		2
Pericarditis		1
Cystic		4
Anemic		2
Ulceration		1
Fishes		1
Total	2	807

Notes:	Head
Cattle, From-Fish	301.781
Cattle, native	1,488
Cattle, From-Fish	285
	324.145

TABLE XXXVI.—Post-mortem inspection in Siouxian Abattoir during fiscal year from January 1 to December 31, 1923

	Cattle	Total	Weight
Total killed	8,846	Kilos 2,032	Grams 128,008

CONDEMNATION

Causes of condemnation	Cattle	
	Carcasses	Parts
Found dead in corral	43	
Tuberculosis	78	2,780.5
Anthrax	7	70
Anthrax contact	5	12
Septicemia	6	7
Pericarditis traumatica	1	12
Emphysema		3 129
Inflammation		1,749.14
Congestion		4,880.1
Ulceration		180.0
Cystic		210
Bruised		211
Pneumopneumonia		214.8
Parasitic nodules		210.5
Suppurative inflammation		66.5
Atrophy		43
Cirrhosis		84
Abscess		111
Fatty degeneration		12
Anemic		23
Gastritis		17.6
Hypertrophy		15.5
Actinomyces		7
Enteritis		7
Nephritis		8
Foot rot		5
Fibrosis		1
Purulent inflammation		2
Traumatic pleurisy		2
Splenitis		7
Necrotic myositis		1
Traumatic enteritis		1
Myositis		.6
Total	130.5	14,347

TABLE XXXVII.—*Beef* live stock report for the fiscal year ending December 31, 1925

Kind of animals	Number arrived		Number removed from city	Number slaughtered
	From foreign ports	From Philippine ports		
Cattle		628	293	2,097
Carabao		291	1,423	98
Horses	844	242	79	
Mules		284	239	9,506
Goats		21	27	29
Sheep		97	13	1
Others		29	2	
Total	844	1,301	2,140	12,361

Kind of animals	Number arrived		Number removed from city	Number slaughtered
	From foreign ports	From Philippine ports		
Cattle		1,453	294	5,429
Carabao		146	429	143
Horses	---	92	299	21
Mules		317	1,494	21,167
Goats		29	27	6
Sheep		29	26	12
Others		2	2	
Total		2,048	2,574	26,598

TABLE XXXVIII.—*Report of meat weights for cattle and carabao slaughtered in the mataderos during the fiscal year ending December 31, 1925*

Name of abattoir	Number killed		Weight in kilos			Amount
	Cattle	Carabao	Philippines	From Porto	Australia	
Amaraing	10,000	9	1,118,979			2,314,976
Do.			1,184			1,184
Do.	257			26,323 5		26,323 5
Do.	76		6,490		290	6,490
Pandacan		5		286		286
Do.	295			106,761		106,761
Do.	6,547				1,049,041	1,049,041
Shimoda			1,129,944	297,221 0	1,044,347	2,223,298 5
Total	21,215	14	1,134	297,221 0	1,044,347	2,223,298 5
Average weight			100 5	150 3	225 0	161 5
			100 1	200		171

Note.—The total weight of meat of cattle slaughtered in Shimoda for which inspection fees were collected was 2,022,121 lbs. This includes 21,222 lbs. of detached muscles and "metabolites."

RURAL CREDIT DIVISION

The work done by this division this year was largely a continuous hammering at all the associations with a view to getting those which have been more or less mismanaged by unworthy directors back to a proper manner of functioning, and to stirring up those which have been found stagnating, and stimulat-

ing those which have shown progress. This year may be considered as an era of relative reorganization, and at the end of the year there is ground for pride that in spite of the very reduced personnel of this division it has accomplished the seemingly impossible. The work done may be summarized as follows:

Collection of overdue loans.—The collection of overdue loans has always been the most difficult problem confronting rural credit organizations in any country and the same difficulty has been met with here. Aside from the loans unpaid because of the financial stringency that has prevailed in many parts of the islands for a number of years, it may be said that many rural credit associations got into trouble because of the wrong idea of the many members that by becoming possessors of one or more shares of stock in any rural credit associations they were entitled to ask for loans, no matter whether or not the money obtained was to be invested for any productive purpose so as to assure the repayment of the loans thus obtained or not. In the long run, therefore, many members who had obtained loans from the associations were unable to return the money on the date of maturity, because they had not invested it in the proper way or else they simply refused to return it. In such cases, court action had to be resorted to, mainly to make an example of the unscrupulous borrowers. Still, save in very few cases, the total amount collected last year exceeded the division's expectations.

Declaration of dividends.—In former years no effort was made to induce the association to declare dividends, especially during their early stages, but in the last two years this move has been urged with the result that in many associations there has been an increase in the circulating capital instead of a decrease, because the general practice was that every shareholder who was entitled to receive a dividend on his shares was induced to reinvest said dividend in the purchase of new shares. This created more interest on the part of the members, for they thus learned how much their money has earned and become hopeful that it would earn more.

Bonding of the treasurers.—During the year with the coöperation of all the provincial treasurers and district auditors, all the municipal treasurers who act as ex-officio treasurers of the agricultural credit coöperative association except the municipal

treasurers in some 40 municipalities were bonded in the Fidelity Fund.

Where there was delay it may be attributed to the failure of the board of directors to meet and to authorize their treasurer to apply for the necessary bond.

Rice and Corn Fund.—The collection of the loans obtained by the rural credit associations from the Rice and Corn Fund was also one of the activities which has been a great burden to this division, because many of the loans granted under the provisions of Act No. 2818 matured June 30, 1925, and at this time of the year when the preparations for the cultivation of rice lands are going on, many associations were unable to repay their loans, so they had to apply for extension under the provisions of Act No. 3039.

However, in spite of great difficulties, a larger amount was paid in during the year 1925 than in any of the previous years, for installments and interest. This is an indication that the rural credit associations are becoming more and more business-like about meeting their obligations. With very few exceptions, no court action will have to be resorted to, to get these associations to pay. So far, the cooperation of provincial fiscals has been asked in only four cases, viz: Goa, Camarines Sur, Carigara, Leyte; Naic, Cavite; and Capiá, Capiá. All the rest are, it is safe to say, paying with reasonable promptitude.

The following tabulation shows the operations for 1925.

Amount due and unpaid from installments, January 1, 1925	P261,062.99
Amount collected during 1925	279,050.48
Amount loaned during 1925	56,250.00
Amount due and unpaid for installments, December 31, 1925	114,016.46

FINANCIAL STATISTICS

Since all the municipal treasurers have not yet submitted their trial balances as of December 31, 1925, a complete statement of the present financial condition of all the rural credit associations for the year 1925 can not be given, but the partial list so far received shows that there has been a substantial increase of capital and loans.

The following trial balance for December 31, 1924, as against December 31, 1923, is shown to give some idea of the steady progress of the rural credit associations.

	December 31	
	1923	1924
Number of associations.	547	545
Number of members.	77,479	81,571
Number of borrowers.	26,945	28,785
Number of depositors.	2,107	2,683
Cash on hand.	P110,223 90	P114,807 19
Loans to members.	2,488,835 61	2,631,990 63
Property account.	1,255 32	4,547 78
Other items.	2,683 64	2,850 82
Capital stock.	872,658 00	870,621 00
Deposits.	102,533 59	103,678 54
Rice and Corn Fund.	1,023,810 24	807,502 16
Philippine National Bank.	8,448 44	1,434 36
Other deposits.	6,759 02	12,616 00
Surplus "A," entrance fee.	13,912 01	18,682 74
Surplus "B," interest.	656,083 75	698,618 43
Dividend account.	11,952 40	30,481 84
Reserve fund.	38,250 53	26,113 67
Other items.	2,140 86	8,082 66
Total assets and liabilities.	2,605,042 47	2,653,981 89

FIBER DIVISION

SCOPE OF WORK

The activities of the Fiber Division during the year 1925 were the inspection of fibers for export; the issuing of Government certificates of inspection and export certificates; collection of inspection fees; instruction of planters and producers in the correct methods of preparing their product for market; tensile strength testing of abaca of different grades; preparation of standard samples for the use of growers, exporters, and other persons interested in the abaca industry; the issuing of Fiber Grading Permits; and answering all correspondence relating to Philippine fibers.

FIBER GRADING AND INSPECTION

The inspection of fibers, particularly abaca fiber, was more rigid during 1925 than during any previous year. Of the total production of abaca, canton, and pacol fibers, 1,109,304 bales were certified as abaca of normal strength, 99,996 bales as abaca damaged, 38,678 bales as canton, and 2,263 bales as pacol fiber. A total of 135,937 bales were certified as damaged and weak fiber, which was about 11 per cent of the total production. The largest percentage of fiber certified as weak and damaged during any previous year was in 1924, when it was 4.4 per cent

REVENUE OF THE FIBER DIVISION

From inspection fees on abaca (cordage) normal	\$110,930.00
From inspection fees on abaca (tagul) normal	22.00
From inspection fees on abaca (damaged)	9,999.00
From inspection fees on abaca (rejected)	3,852.20
From inspection fees on maguey (retted)	18,382.30
From inspection fees on maguey (machine-cleaned)	31.00
From inspection fees on sisal (retted)	281.30
From inspection fees on sisal (machine-cleaned)	24.00
From inspection fees on cotton	3,307.50
From inspection fees on pecol	220.30
Rejected fiber, all kinds except abaca	168.30
Total for inspection fees	147,286.70
For fiber grading permit fees (1925)	22,075.00
For the sale of standard samples of fibers	302.00
Total revenue of the Fiber Division (1925)	170,203.70

FIBER GRADING ESTABLISHMENTS DURING THE YEAR 1925

There were 31 fiber grading stations and 136 fiber grading establishments operating in the Philippine Islands during the year 1925, distributed in fourteen provinces.

DIVISION OF PUBLICATIONS

During the year which ended December 31, 1925, the number of publications issued far exceeded that in previous years. The total number of publications released during the year was 138 as against 49 in 1924, an increase of 84. These publications were as follows: one annual report, 8 bulletins, 4 numbers of the Philippine Agricultural Review, 39 new circulars, 70 circulars republished, and 8 miscellaneous publications. The number of publications distributed was 59,002 as against 46,464 the previous years. The following table shows the number of publications issued and distributed in 1924 and 1925:

TABLE XLI

Title of publications	Number of publications issued			Number of publications distributed		
	1924	1925	Increase + Decrease	1924	1925	Increase + Decrease
Annual report	1	1	0	1,235	1,691	+ 456
Agricultural Review	4	4	0	5,790	5,919	+ 129
Bulletins	1	8	+ 7	1,878	3,899	+ 2,021
Circulars	27	109	+ 82	30,092	44,268	+ 14,176
Misc. arrange.	10	8	- 2	1,963	2,223	+ 260
Reprints		4	+ 4		303	+ 303
Posters		4	+ 4		700	+ 700
Total	49	133	+ 84	49,401	59,002	+ 9,601



Some of the recently published circulars of the Bureau of Agriculture

THE PHILIPPINE AGRICULTURAL REVIEW

Besides the four numbers of the Review published during the year a supplement was also published containing the biography of the late Gen. Adriano Hernandez, and the total number of copies distributed was 5,919. The following classification gives the subjects of the articles published during the year

Coffee	1
Corn	3
Feeding	3
Fiber	1
Forage	2
Fruits	6
General agriculture and economics	2
Mango	1
Peanut	1
Pests of plants and diseases	6
Propagation of plants	1
Rice	5
Sugar cane	7
Tobacco	2

BULLETINS

Three bulletins were published during 1925 entitled as follows: No. 89, "The Food Plants of the Philippines," third revised edition, by P. J. Wester; No. 40, "Agricultural Credit Coöperative Associations in the Philippines," by Julian C. Balmaceda; and the Spanish edition of the latter which serves as a guide to the rural credit associations in the provinces.

CIRCULARS

Thirty-nine new circulars were published and 70 old ones were ordered republished as against 15 and 12, respectively, for the previous year or an increase of 24 new circulars, and 58 old ones or a total increase of 82 circulars. The following are the new circulars published:

- No. 137—Tobacco Growing in the Cagayan Valley, by Domingo B. Paguirigan. English.
- No. 147—A Catechism on Leaf Tobacco Production, by the Plant Industry Division. English, Spanish, Ibanag, and Ilocano.
- No. 152—The Chayote, by P. J. Wester. English.
- No. 153—Coconut Stem Bleeding Disease, by N. G. Teodoro. English.
- No. 154—The Avocado and Its Propagation, by P. J. Wester. English and Spanish.
- No. 155—A Guide for Examination of Diseased Plants and for Sending Specimens of the Same to the Bureau of Agriculture for Identification, by Dr. N. G. Teodoro. English.

- No. 155—A Guide for Sending Insect Pest Specimens to the Bureau of Agriculture for Identification, by F. Q. Otanes. English.
- No. 157—*Aeginetia indica* in Cane Production, by Dr. N. G. Todorov. English.
- No. 158—Table Showing Planting Distances for Fruit Trees in the Philippine Islands, by the Plant Industry Division. English and Spanish.
- No. 159—The Rice Stem Borer—*Acosp na Pula* o Apayang Pula (Tagalog) Guetaquet (Pangasinan), by F. Q. Otanes. English.
- No. 160—The Rice Bug (*Leptocorvus acuta* Thunberg), by F. Q. Otanes. English.
- No. 161—Suggestions for the Care of Budded and Grafted Plants, by the Plant Industry Division. English.
- No. 162—A Descriptive List of Some Forage Grasses for Distribution by the Bureau of Agriculture for Trial Planting, by the Plant Industry Division. English.
- No. 163—A Descriptive List of Some Sugar-Cane Varieties Recommended for Trial Planting by the Bureau of Agriculture, by the Plant Industry Division. English.
- No. 164—A Catechism on Mango Production, by F. Octubre. English.
- No. 165—Etain-Korassua Solution Effective Poison for Locusts, by the Pests Control Division. English.
- No. 166—The Toy Beetle (*Leucopholis Iroata* Chevz.) in the Philippines, a Serious Pest, by F. Q. Otanes. English.
- No. 167—The Growing of Sugar Cane in the Philippines, by S. Asuncion. English.
- No. 168—Anthracnose of Eggplant, by J. R. Borayong. English.
- No. 169—Blight of Gabi (*Phytophthora Colocassiae* Rnt), by Elison T. Gomez. English.
- No. 170—Sugar Cane Smut, by S. L. Marquez. English.
- No. 171—Diseases of Tobacco (*Nicotiana tabacum* L.) in the Philippines, by F. M. Clara. English.
- No. 172—Method of Planting Abaca Seeds, by the Plant Industry Division. English and Spanish.
- No. 173—Leaf Blight of Corn (Caused by *Helminthosporium inconspicuum* Cke. et Ellis.), by Severo L. Marquez. English.
- No. 174—Piji Disease of Sugar Cane, by Severo L. Marquez. English.
- No. 175—The Cabbage Caterpillar (*Cra. binastella* Zell.) by Pedro Sison. English.
- No. 176—Banana Diseases in the Philippines, by F. B. Serrano. English.
- No. 177—The Citrus Bark Borer (*Agrilus occipualis* Eschsch), by J. P. Tan. English.
- No. 178—Castration of Animals, by Jose G. Guevara. English.
- No. 179—Coconut Diseases and Their Control, by Dr. N. G. Todorov. English.
- No. 180—The Planting of Fruit Trees, by F. G. Galang. English.
- No. 181—A Guide for Visitors to the Lamesa Experiment Station of the Bureau of Agriculture at Lamesa, Batnan, by the Plant Industry Division. English.
- No. 182—Quarantine Procedure to Guide Importers and Exporters of Plant Materials, by Dr. N. G. Todorov. English.

- No. 183—*Rice Diseases and Their Control*, by Dr. N. G. Teodoro and J. R. Bogayong. English.
- No. 184—*Brief Notes on the Carabao*, by Carlos X. Burgos. English.
- No. 185—*Pointers on Goat Raising*, by Carlos X. Burgos. English.
- No. 186—*Descriptive List with Cultural Directions of Tobacco Varieties Grown and Distributed by the Bureau of Agriculture, by the Plant Industry Division*. English.
- No. 187—*Rubber Tree Diseases and Their Control*, by Dr. N. G. Teodoro. English.
- No. 188—*Plant Pests and Diseases: Their Nature and Methods of Control in General*, by Dr. N. G. Teodoro. English.

The following are the old circulars reprinted:

Nos. *5, *15, *16, *17, *28, *21, *22, *24, *30, *32, *34, *38, *40, *41, *42, *43, *46, *48, *47, *48, *50, *52, *53, *59, *60, *61, *64, *67, *69, *77, *79, *80, *82, *83, *84, *85, *87, *88, *89, *90, *91, *92, *94, *101, *97, *98, *99, *100, *102, *103, *106, *108, *107, *109, *111, *106, *118, *117, *118, *122, *123, *128, *129, *130, *132, *134, *135, *139, *145.

* English only.

† English and Spanish.

The total number of circulars distributed was 44,268 as against 35,068 in 1924, an increase of 9,200. The distribution by languages was as follows:

	Copies
English	9,850
Spanish	17,736
	16,532

REPRINTS

Four reprints were ordered during the year. These were important articles published in the *Philippine Agricultural Review*.

MISCELLANEOUS PUBLICATIONS

Besides the above enumerated bulletins, circulars, reprints, etc., eight miscellaneous publications were published. The most important of these were a pamphlet entitled "The Bureau of Agriculture—The Farmers' Bureau," containing an exposition of the work of this Bureau, another containing a compilation of the lectures of some of the technical personnel of this Bureau, broadcasted by the radio; and three pamphlets on poultry in Tagalog.

POSTERS

Four posters were printed during the year: One on tobacco, in English and Ibanag; one on livestock; one on poultry and one on the control of white grubs, in English and Tagalog.

These were distributed in the provinces. There are still other posters in preparation.

LIBRARY

The routine work of the library was carried on as usual, during the year and in addition the entire library has been rearranged, and 300 sets of publications were sent to the Bureau of Printing to be bound. The sorting of miscellaneous publications in the *bodega* is still going on.

Books accessioned.—The total number of books accessioned during the year was 150.

Publications received.—About 2,000 copies of miscellaneous bulletins, circulars, and journals were received.

Articles clipped.—There were about 900 articles clipped from local papers for preservation.

Cuts handled by the Bureau of Printing.—There were 311 cuts handled by the Bureau of Printing, of which number 90 were new.

Cuts loaned.—There were 50 cuts loaned to Government offices and local papers during the year 1925.

Requisition for books.—Requisitions were made for 53 miscellaneous books.

Subscriptions.—During the year subscriptions to 12 miscellaneous journals and local papers were authorized.

OTHER ACTIVITIES

Photographic work.—Two hundred and forty (240) plates and 180 rolls of films were developed and 2,078 prints were made during the year.

Printing machines.—The work done in the multigraph and mimeograph machines of the Bureau of Agriculture is shown in the following table:

TABLE XLII

	1924	1925	Increase
MULTIGRAPH			
Work orders.....	41	85	↑ 44
Copies printed.....	371,803	317,975	↓ 53,828
MIMEOGRAPH AND PLANOTYPE			
Work orders.....	701	595	↓ 106
Copies printed.....	1,303,117	1,313,573	↑ 10,456

DIVISION OF FARM STATISTICS

Routine work.—This work was seriously handicapped this year because the municipal presidents were far later than usual



KILL THE "SALAGUBANG"

WHY?

[illegible]

³ For some, the adult's characteristics (see in the text) of the groups: 'Red' or 'official', 'circles' and other types, but the strategy is the same.

HOW?

[illegible]

1. The above survey of the literature on the topic of the role of the state in the development of the economy of the Third World countries shows that the role of the state is very important. The role of the state is to create a favorable environment for the development of the economy of the Third World countries. The role of the state is to create a favorable environment for the development of the economy of the Third World countries. The role of the state is to create a favorable environment for the development of the economy of the Third World countries.

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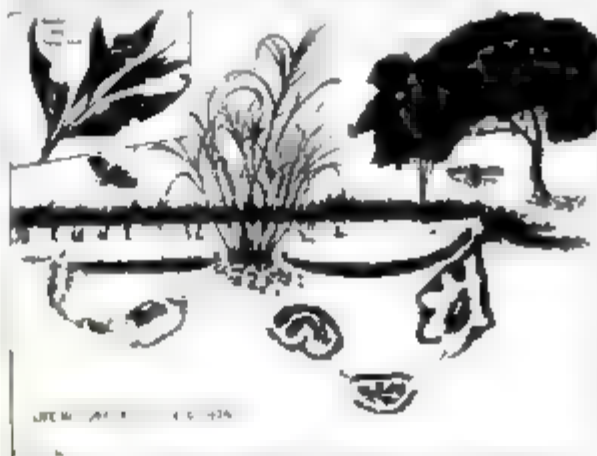
ከዚህ በታች ያሉት ስራዎች በጥንቃቄ ማጠናቀቅ ይገባል፡

By the way, I am not sure if I have the right name for the book. It is called "The Book of the Dead" in the original text.

...the

(continued)

Figure 1



The "Helicopters" poster, published in Tassatou and Visavay

WATCH FOR AND DESTROY

THE BUNGA NĠ TUBÓ

(*ARGINETIA INDICA*)

THIS PRETTY FLOWERING SUGAR CANE ROOT PARASITE

BECAUSE

AND

BECAUSE

IT GROWS AND
FEEDS ON
THE ROOTS OF
SUGAR CANE AND
OF CORN AND
RICE ALSO
SOMETIMES HALF
STARVING
THE HOST PLANT
SO THAT THE
YIELD IS
LOW OR EVEN
KILLING IT



A SINGLE
STALK
ON A SINGLE ROOT
EVERY STALK
BEARS A
FLOWER AND
EVERY FLOWER
BEARS A MASS OF
TINY SEEDS
THAT WINDS AND
WATER
SCATTER FAR
AND WIDE

Have for and Check Down all you can find Where there are very
many them with the Host Plants.

Plow Fields before Sugar Cane, Potato, Deep—Especially before
Wheat—and Watch for some other Crops—Mango, Jack, Bread, Canoe,
Yam or Cassava.

Plant Arginetta in Corn Crops and Plant under for Fertilizer

REPLANT TO CANE IN EIGHTEEN MONTHS

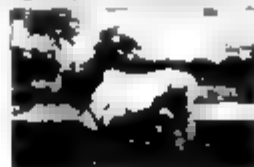
The Arginetta indica parasite

RAISE BETTER TYPES OF LIVESTOCK

WHAT THE BUREAU OF AGRICULTURE CAN DO YOU ALSO CAN DO

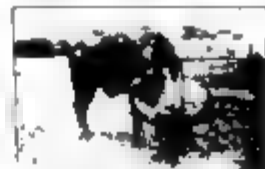


The Mustang or Grade horse gives far more service to the owner than the Native because it is larger and stronger and faster and is of better constitution and consequently brings a higher price in the market although it costs almost nothing more to raise him than to raise a Native Pony.



With Mustang or Grade cattle the cattleman is assured of more meat per head of better meat and so of higher prices.

Grade males are strong work animals and so bring a better price as work bullocks among the sugar cane farmers than the natives. They look are more resistant to hardships. Yet the cost of raising him is no greater than the cost of raising the inferior native animals.



The Carabao is the Right Hand of the rice grower. No other animal can work the field so surely, so steadily and so cheaply as the Carabao.

The better the Carabao the better the day's work he can do and the more days' work. This reduces the cost of production.

Grade Carabao's bring much better prices in the market than Natives.

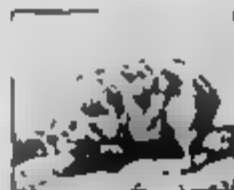
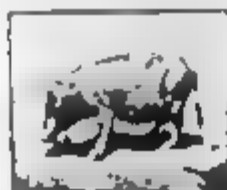
The Livestock poster

IMPROVE YOUR NATIVE PIGS

By Breeding the Sows to Pure-bred
American Boars

THE RESULTING PIGS WILL BE - - - - -

GRADES



There is more weight in grade pigs; **C. I., MORE MEAT** and **MORE LARD**, and of better quality **MORE MARKET DEMAND** and therefore **MORE MONEY** than for the native pigs of the same age.

So it **PAYS FAR BETTER** to raise high grade pigs than native pigs.



HELP REDUCE THE IMPORTATION OF PORK PRODUCTS, THE VALUE OF WHICH AMOUNTS TO OVER TWO MILLION PESOS EACH YEAR!

DO YOU WANT MORE AND BIGGER EGGS?



Then Get Pure Bred
Roosters and Mate them to
Native Hens



TAKE GOOD CARE OF
THEM AND OF THE RESULTING
MESTIZO CHICKENS

Feed them Well
Give them plenty of Clean Water
Give them Sun and Shade, Shelter
and Exercise
Keep Them Healthy

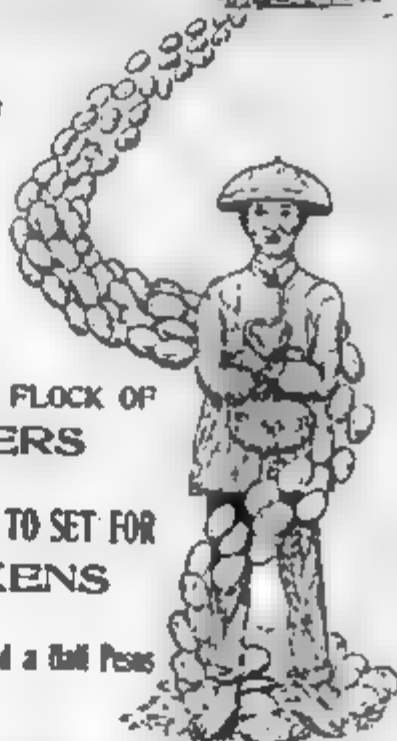
AND YOU WILL HAVE A FLOCK OF
GOOD LAYERS

EGGS TO EAT, TO SELL AND TO SET FOR
MORE CHICKENS

We Pay China About a Million and a Half Pesos
a Year for Eggs

LET'S KEEP THAT MONEY IN THE COUNTRY!

The Egg collector



in submitting their reports, making it necessary for the Executive Bureau to request the suspension of the salaries of quite a number of them until they forwarded their belated reports.

A considerable portion of the expected reports were not received in fact, until six to ten months after the time they were due, with the result that the work of examining, analyzing and compiling the data reported is not yet done, to say nothing of the considerable amount of extra work entailed because of the necessity for voluminous correspondence between the municipal and provincial offices and this Bureau, most of it through the Executive Bureau to secure the belated crop reports and animal lists.

As stated in past reports, this division compiles annually over six million items. Each and all of these items are carefully analyzed, checked and compared before compilation is done, and further information or correction is requested when errors are detected, as they frequently are.

The compilation work was also delayed on account of the many errors found in the reports submitted by municipal officials which had to be returned for rectification.

It was therefore necessary to prepare preliminary figures for the year 1925 in order to submit the annual report of this division on time.

Distribution of statistical information—The services of this division in furnishing statistical information is increasing considerably. During the year about 75,000 mimeographed copies of crop and livestock statistics were distributed in the Islands and abroad, or nearly ten times as many as five years ago.

Correspondence.—There were received and sent out 7,416 letters against 5,725 in 1924, or an increase of 29 per cent.

RECOMMENDATIONS

Believing that efficiency can best be promoted by offering our personnel better prospects while in the service, it is hereby recommended that moderate increases in salaries be granted when merited; for experience has shown that in the long run reasonably well-paid employees show more interest in their work and render more satisfactory service than those meagerly paid; and, furthermore, that the latter are, as a rule, more or less discontented and on the lookout for better positions elsewhere.

It is also recommended that the technical personnel of this Bureau be increased in number so as to take care of the increased activities thereof.

Two technical men should be sent abroad: one to investigate the different practices followed in China, Siam, Cochin-China, and Burma in rice culture; and another to study the rubber and fruit industries in far eastern countries such as Ceylon, India, Sumatra, China, etc.

It is requested that two more experiment stations be established in the rice regions one for lowland rice and another for upland rice; and that a laboratory for research on plant pests and diseases be established in one of the rice growing provinces.

For the purpose of conducting field experiments on various pests and diseases and so that there may be a place where to plant quarantined materials it is advisable to acquire a piece of land about four hectares in area.

The successful results obtained from the imported breeding animals necessitates the importation of additional ones, especially pigs and poultry, in order to continue this work.

The cooperative marketing work should be extended to all agricultural activities in order that the farmers, especially the small ones, may unitedly store and sell their crops at better prices, thus curbing the middlemen.

The following legislation is needed: Acts appropriating money for the eradication of the coconut bud-rot, the water lily, and rats.

The Rural Credit Laws should also be amended so as:

(a) To grant the Director of Agriculture more extensive power than that now allowed him by the law, to make his authority more nearly commensurate with his responsibility. At present the Director of Agriculture is a mere adviser and supervisor of the Rural Credit Associations. He can not even put a stop to irregularities in the operations of the associations, as he is debarred from taking any drastic measure to close a dangerous association or even remove unworthy directors.

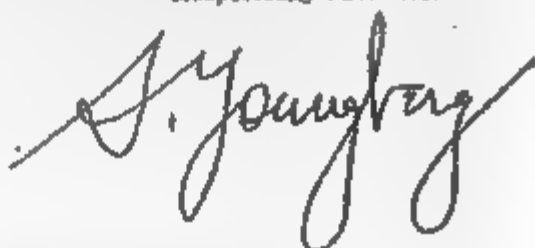
(b) To give all the existing associations more extended privileges and exemptions so as to facilitate their development with due expediency and to remove all aspersions on their methods of administration.

The recommendation submitted in last year's report to the effect that an additional appropriation should be set aside for printing purposes in order to enable this Bureau to publish its pamphlets in native dialects for the benefit of farmers who

are unable to read English or Spanish, is hereby reiterated. In line with this recommendation it is hereby recommended that the bill submitted in the Philippine Legislature during its last session appropriating a certain sum for the same purpose be supported by the administration.

And lastly it is recommended that an additional appropriation be requested to take care of different needs of this Bureau such as for the repair of old buildings, the construction of necessary new ones in our stations, the purchase of equipment, etc.

Respectfully submitted.

A large, stylized handwritten signature in dark ink, appearing to read 'J. Youngberg'. The signature is fluid and cursive, with a long horizontal stroke at the end.

Director of Agriculture

The Honorable, J. Youngberg
The SECRETARY OF AGRICULTURE
AND NATURAL RESOURCES,
Manila, P. I.

APPENDIX

TABLE A.—Comparative statistics on the principal crops of the Philippine Islands for the years ending June 30, 1924 and 1925

Crops	Area cultivated		Products	Amount produced	
	1925	1924		1925	1924
Rice	Hectares 1,713,549	Hectares 1,737,916	Rough rice	45,682,908	41,870,700
Sugar cane	330,478	327,139	Sugar	19,659,488	7,382,840
			Manacha (small cane)	521,000	450,100
			Meal (a by-product)	4,316,210	2,880,670
			Waxes	4,323,860	2,070,560
			Ripe cane as food	136,578,000	46,088,000
Cocaine (average of 150 trees per hectare)	472,643	449,448	Copra	8,728,800	9,119,180
			Cocaine oil	1,894,450	1,365,770
			Toba (a by-product)	67,202,230	114,581,300
			Alum (bisanla hemp)	2,503,670	8,125,480
			Manila hemp	3,608,210	7,830,320
			Tobacco leaf	910,910	941,800
			Manila	466,090	443,010
			Cacao	1,311,280	1,160,800
			Coffee	1,178,200	1,173,000
Total	3,641,678	3,547,859			

Crops	Products	Average price in the municipal markets		Value of sugar cane and coconut products in the municipal markets		Total value in the municipal markets	
		1925	1926	1925	1926	1925	1926
Rice	Rough rice	P4 25	P4 25			P122,172,575	P172,967,298
	Sugar	10 84	14 06	P187,242,815	P188,296,570		
Sugar cane	Panocha (milled) (milled)	8 33	9 59	4,371,010	4,312,828		
	Rice (average)	16	17	642,140	581,250		
	Coconut	80	12	640,435	282,149		
	Total value of all sugar-cane products					112,729,300	105,647,180
	Rice (average)	10	12	3,130,250	1,624,808		
	Coconut (average of 125 trees per hectare)	19 47	8 89	59,928,228	57,474,070		
	Coconut oil	43	41	352,068	358,540		
	Coconut beverage	96	87	7,987,136	8,270,418		
	Total value of all coconut products					75,647,880	68,126,278
	Others (Municipal market)	22 83	12 15			84,274,218	41,115,248
	Others (Municipal market)	4 00	4 20			39,767,250	57,303,290
	Total value of all products					31,621,190	31,518,920
	Others (Municipal market)	18 66	8 24			6,582,438	6,427,140
	Others (Municipal market)	1 07	1 04			2,133,708	1,207,400
	Others (Municipal market)	71	65			528,300	884,800
Total						671,429,189	640,437,118

EQUIVALENTS

1 hectare of rough rice equals 44 kilon.

1 picul equals 63.25 kilon.

1 covan of milled rice equals 67.5 kilon.

1 quintal equals 46 kilon.

1 covan of milled corn equals 22 kilon.

P1 (Philippine currency) equals 24.50 (U. S. A. currency).

[Compiled from the official reports submitted by municipal presidents, by ANTONIO PABLO, Chief, Division of Farm Statistics.]

TABLE B.—*Palay (rough rice)—Area cultivated and production by provinces for the years ending June 30, 1924 and 1925*

Provinces	Area cultivated		Increase or Decrease	Production		Increase or Decrease
	1925	1924		1925	1924	
	<i>Hectares</i>	<i>Hectares</i>	<i>Per cent</i>	<i>Cannas¹</i>	<i>Cannas¹</i>	<i>Per cent</i>
Abra	26,740	15,210	+ 3	317,300	270,100	+ 18
Agusan	6,740	6,620	+ 3	62,700	133,600	+ 14
Albay	37,210	36,010	+ 1	1,012,700	858,400	+ 6
Angeles	26,820	31,410	-11	624,300	645,700	-12
Bataan	16,610	17,100	-4	404,300	449,600	+ 27
Batanes	100	250	-25	2,100	2,400	-21
Busuegas	64,240	51,440	+ 3	602,400	708,600	+ 6
Ibaloi	48,260	50,120	-17	992,200	894,600	+ 9
Ikkidman	2,400	2,440	+ 16	21,000	4,000	+ 5
Ikkidman	28,900	27,900	+ 2	1,608,600	1,647,600	+ 3
Ikkidman	37,600	37,620	+ 1	800,700	624,100	+ 18
Ikkidman	6,600	6,110	+ 1	145,400	117,300	+ 27
Ikkidman Norte	37,040	46,000	+ 3	1,231,400	973,300	+ 38
Ikkidman Sur	31,630	48,340	+ 3	1,624,600	1,744,600	+ 6
Ikkidman	32,410	39,400	+ 7	789,300	671,400	+ 17
Ikkidman	7,720	9,540	-10	127,600	137,600	+ 7
Ikkidman	12,710	12,600	+ 8	317,300	300,300	+ 5
Ikkidman	12,600	12,610	+ 7	324,700	24,900	+ 12
Ikkidman	62,600	62,650	-1	1,294,600	1,002,700	+ 28
Ikkidman	41,500	43,240	-3	841,900	769,600	+ 10
Ikkidman	123,510	120,380	-4	2,022,000	2,062,760	+ 7
Ikkidman	5,400	5,400	+ 1	113,300	105,000	+ 7
Ikkidman	25,100	24,980	+ 1	85,400	68,400	+ 16
Ikkidman	20,900	20,920	+ 3	616,600	647,900	+ 3
Ikkidman	60,400	60,840	+ 7	1,177,800	849,600	+ 40
Ikkidman	44,220	42,440	+ 2	1,814,800	678,700	+ 17
Ikkidman	14,470	14,800	+ 3	302,800	346,600	+ 13
Ikkidman	8,700	8,700	+10	70,600	47,900	+ 44
Ikkidman	16,400	16,840	+ 4	329,200	268,600	+ 18
Ikkidman	12,620	12,400	+ 4	484,500	361,600	+ 16
Ikkidman	51,180	63,080	-3	1,180,700	1,064,800	+ 11
Ikkidman	179,710	174,820	+ 2	7,148,400	4,416,300	+ 33
Ikkidman	11,610	11,670	+ 1	300,000	300,000	+ 0
Ikkidman	34,620	45,400	-11	981,600	987,000	+ 3
Ikkidman	7,110	7,610	-6	180,000	184,800	+ 3
Ikkidman	6,240	6,300	+ 10	187,300	71,700	+ 59
Ikkidman	71,100	71,400	-3	1,862,000	1,870,000	+ 14
Ikkidman	195,690	195,610	+ 4	7,025,000	6,562,000	+ 10
Ikkidman	24,410	22,710	+ 7	715,000	650,000	+ 10
Ikkidman	6,170	6,610	-6	139,300	145,700	+ 8
Ikkidman	22,160	20,760	+ 7	485,100	427,000	+ 14
Ikkidman	19,340	20,730	-4	382,000	375,400	+ 2
Ikkidman	2,420	1,240	+100	63,400	25,200	+155
Ikkidman	24,730	24,630	+ 1	470,400	430,600	+ 9
Ikkidman	60,120	62,620	-3	1,340,600	1,007,700	+ 16
Ikkidman	22,600	24,180	-4	746,300	704,800	+ 6
Ikkidman	24,620	28,640	-3	808,400	486,600	+ 14
Ikkidman	11,630	11,270	-3	322,800	324,700	+ 1
Philippine Islands	1,733,400	1,737,910	-1	48,482,600	41,870,700	+ 10

¹ Canna=72 Mirra=44 kilos including sack.

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TABLE C.—Pajay (rough rice)—Average yield per hectare and average price and value of production in the municipal markets, by provinces, for the years ending June 30, 1934 and 1935

Particulars	Average price per cwt		Average price per bushel		Total value		Increase or decrease
	1925	1926	1925	1926	1925	1926	
Alfalfa							
Alfalfa	12	0	74 19	70 19	74 19 142	71 09 130	+ 19
Alfalfa	12	0	1 10	1 3	1 10 142	1 3 130	+ 19
Alfalfa	12	0	1 10	1 3	1 10 142	1 3 130	+ 19
Alfalfa	12	0	1 10	1 3	1 10 142	1 3 130	+ 19
Alfalfa	12	0	1 10	1 3	1 10 142	1 3 130	+ 19
Barley							
Barley	12	0	6 00	6 00	6 00 142	6 00 130	+ 19
Barley	12	0	6 00	6 00	6 00 142	6 00 130	+ 19
Barley	12	0	6 00	6 00	6 00 142	6 00 130	+ 19
Barley	12	0	6 00	6 00	6 00 142	6 00 130	+ 19
Barley	12	0	6 00	6 00	6 00 142	6 00 130	+ 19
Corn							
Corn	12	0	5 20	5 20	5 20 142	5 20 130	+ 19
Corn	12	0	5 20	5 20	5 20 142	5 20 130	+ 19
Corn	12	0	5 20	5 20	5 20 142	5 20 130	+ 19
Corn	12	0	5 20	5 20	5 20 142	5 20 130	+ 19
Corn	12	0	5 20	5 20	5 20 142	5 20 130	+ 19
Oats							
Oats	12	0	4 00	4 00	4 00 142	4 00 130	+ 19
Oats	12	0	4 00	4 00	4 00 142	4 00 130	+ 19
Oats	12	0	4 00	4 00	4 00 142	4 00 130	+ 19
Oats	12	0	4 00	4 00	4 00 142	4 00 130	+ 19
Oats	12	0	4 00	4 00	4 00 142	4 00 130	+ 19
Wheat							
Wheat	12	0	8 00	8 00	8 00 142	8 00 130	+ 19
Wheat	12	0	8 00	8 00	8 00 142	8 00 130	+ 19
Wheat	12	0	8 00	8 00	8 00 142	8 00 130	+ 19
Wheat	12	0	8 00	8 00	8 00 142	8 00 130	+ 19
Wheat	12	0	8 00	8 00	8 00 142	8 00 130	+ 19
Other							
Other	12	0	1 00	1 00	1 00 142	1 00 130	+ 19
Other	12	0	1 00	1 00	1 00 142	1 00 130	+ 19
Other	12	0	1 00	1 00	1 00 142	1 00 130	+ 19
Other	12	0	1 00	1 00	1 00 142	1 00 130	+ 19
Other	12	0	1 00	1 00	1 00 142	1 00 130	+ 19

^b b. except as ^c shown in 44 below. Nothing is marked.

TABLE D.—Sugar cane—Area cultivated and production of sugar and panocha, by provinces for the years ending June 30, 1924 and 1923

Province	Area cultivated		Increase or decrease	Sugar		Panocha	
	1923	1924		1923	1924	1923	1924
	<i>Hectares</i>	<i>Hectares</i>	<i>Per cent</i>	<i>Piculs</i>	<i>Piculs</i>	<i>Piculs</i>	<i>Piculs</i>
Abra	810	690	+ 36	60	60	7 690	6,540
Agusan	260	182	+ 33	210	180	1 480	1 480
Albay	1,100	2 620	+ 11	2 560		11 320	8,020
Antique	2,200	2 340	+ 14	70 480	76 080	2 380	200
Bataan	4 770	4,290	+ 11	77,120	64,840		
Batangas	70	60	+ 17			160	80
Batanga	24 580	27,500	+ 12	765 490	801,370		
Bolol	1 230	1,020	+ 20	4 630	4 070	20,830	13,430
Bukidnon	740	50	+ 64			1,220	1,550
Bulacan	2,110	2,660	+ 22	68,470	82,890	260	400
Cagayan	270	300	+ 10	80	80	1,140	2,380
Camaguey Norte	210	190	+ 10	210		2 440	1 780
Camaguey Sur	890	870	+ 2			12 900	12 180
Capiz	2 220	2 030	+ 4	125,520	110 380	24 110	10 770
Cavite	2 820	2,480	+ 4	64,720	60 950	9,070	19,180
Cebu	6,090	6,620	+ 20	115,580	143,840	12,740	22,770
Cutabala	10	20	+ 100			1 210	800
Davao	70	70				100	
Ilocos Norte	4,070	8,500	+ 10			33 640	26,520
Ilocos Sur	11,230	10 010	+ 12	200,100	263 440	75,470	8,320
Iloilo	16,180	16,800	+ 42	425 790	291 900		
Iwahig	540	400	+ 10			1,500	2,210
Irigaon	2,340	7,960	+ 12	410 240	121 850	11 160	64 870
Izamal	600	430	+ 10	1,140	15,140	570	60
La Union	1,200	2 860	+ 6	37 230	28,960	61,990	10,970
Leyte	1,240	1 010	+ 13	7 260	1,790	18 380	16 460
Marikina	410		+ 17			4 280	3 440
Manila	120		+ 17			3 480	3,020
Marikina	2 650	1,670	+ 61	80,060	74,780	3 080	2,320
Misamis	80	70	+ 14	990	830	030	260
Mountain Province	640	490	+ 17	10	1,040	3 520	1 370
Nueva Ecija	1,530	1,000	+ 10	16,070	9,070	19,760	17 680
Nueva Vizcaya	210	210	+ 14			2 800	3,670
Occidental Negros	68 760	68 360	+ 1	6 290 670	5,730 840		
Oriental Negros	4 010	4 690		674 490	228,090	20	70
Palawan	70	70				480	360
Pampanga	37 460	36 770	+ 4	1,661 950	1,366 180	6 000	1,100
Pangasinan	4 270	5 810	+ 8	84 100	71 600	23 420	28,700
Rizal	1,670	1,610	+ 10	23 360	16,040	6 070	7 160
Romblon	10					100	
Rosario	640	400	+ 22	100		7 240	4 130
Samar	2 280	2,300	+ 13			80 650	62 770
Sarangani	110			2,300			
Sulu	430	230	+ 87		80	9,990	8,860
Tarlac	10,880	10,630	+ 12	304,970	265,340	61,940	38 220
Tayabas	610	490	+ 4		130	10,360	7 080
Zambales	850	480	+ 47	2,370	720	11 500	5,730
Zamboanga	160	140	+ 14	1,100	1 140	2,240	2 610
Philippine Islands	229 470	227 190	+ 6	10,089 480	7 122 640	621,020	656,000

* 1 picul = 62.25 lbs.

TABLE E.—*Sugar cane—Average yield per hectare, average prices and total value, by provinces, for the years ending June 30, 1924 and 1925—Continued*

Provinces	Average yield per hectare of sugar and pascacha combined		Average price in the municipal markets				Total value of all sugar-cane products in the municipal markets		Increase or decrease
			Sugar per picul		Pascacha per picul				
	1925	1924	1925	1924	1925	1924	1925	1924	
	Piculs	Piculs							Per cent
Risai.	17.6	15.3	79.68	712.93	79.87	79.22	7273,760	7275,570	— 2
Bambon.	16.8				12.94		2,070		
Banwar.	15.1	9.8	10.08		7.22	10.63	65,140	44,070	+ 28
Sorsogon.	15.4	14.7			8.71	7.86	975,060	322,820	— 4
Sulu.	21.4		9.60				21,940		
Surigao.	23.2	23.8		19.22	14.15	14.20	141,820	86,230	+ 63
Tarlac.	22.8	22.4	8.46	11.66	5.43	7.66	2,843,040	3,371,920	+ 15
Tayabas.	21.2	16.1		9.54	8.31	11.51	101,040	92,180	+ 8
Zamboanga.	17.4	16.1	7.33	11.12	9.17	7.90	81,100	50,300	+ 58
Zamboanga.	21.5	20.8	10.48	13.88	9.85	9.97	35,710	42,770	— 17
Philippine Islands	46.7	33.4	10.08	14.00	6.29	9.50	112,728,900	105,067,180	+ 7

TABLE F.—Coconut—Trees cultivated and trees bearing, by provinces, for the years ending June 30, 1924 and 1925

Provinces	Trees cultivated		Increase or decrease	Trees bearing	
	1925	1924		1925	1924
	Number	Number	Per cent	Number	Number
Abra.	9 730	8 290	+ 17	3 670	3 520
Agusan	530 510	577 510	+ 9	280 190	263 620
Albay	4 192 850	4 140 760	+ 1	2 583 370	2 600 720
Ant. que	482 540	474 000	+ 2	268 000	260 850
Bataan.	34 370	34 900	- 2	12 590	12 470
Batanes.	19 840	30 080	- 1	10 100	10 270
Batangas	970 530	922 690	+ 5	37 247	463 500
Bohol	2 400 520	2 216 170	+ 8	1 017 690	1 047 830
Hukidnon	5 070	4 310	+ 16	1 810	830
Hulacan.	29 760	29 790		4 760	4 540
Igayan	255 180	264 320		88 160	85 020
Camarines Norte	1 811 130	1 589 730		1 083 050	1 08 000
Camarines Sur	2 189 160	2 742 680	3	1 273 540	1 204 000
Capiz	2 281 680	2 350 340	3	1 076 110	1 004 110
Cavite	503 660	274 710	+ 82	200 010	108 450
Cebu	4 740 800	4 592 660	+ 3	4 285 020	4 281 700
Cotabato	637 880	621 130	+ 3	137 070	107 990
Davao	1 141 030	1 09 290	+ 3	497 600	460 60
Ilocos Norte	62 10	54 050	+ 15	16 310	16 720
Ilocos Sur	135 440	129 420	+ 5	88 000	86 180
Iloilo	1 040 710	1 059 520	+ 4	891 000	911 320
Isla de	18 410	15 010	+ 23	6 670	0 200
Laguna	9 135 000	9 049 230	+ 1	6 537 190	6 374 050
Laos	505 060	437 780	+ 17	273 310	221 740
La Union	188 620	166 060	+ 1	114 620	110 870
Leyte	3 379 810	3 436 610	+ 4	2 408 310	2 304 280
Marinduque	2 160 580	2 128 140	+ 2	1 368 310	1 378 790
Manabata	1 372 230	1 176 790		680 760	764 050
Mindoro	1 278 190	1 081 960	+ 8	676 320	519 020
Misamis	5 063 230	4 993 240	+ 1	3 208 360	3 143 840
Mountain Province	17 560	17 770	+ 2	7 470	10 880
Nueva Ecija.	36 070	35 320	+ 2	19 230	18 870
Nueva Viscaya	7 420	6 070	+ 23	1 020	1 000
Occidental Negros.	1 296 210	1 240 370	+ 4	807 810	780 690
Oriental Negros	1 042 000	1 006 420	+ 7	1 264 620	1 275 700
Paiswan	581 780	524 480	+ 7	258 060	242 680
Pampanga.	3 450	3 650		3 600	3 600
Pangasinan	2 159 930	2 068 510	+ 4	1 101 310	1 054 880
Risal	20 520	4 650	+ 40	1 600	1 010
Romblon.	2 003 200	1 926 320	+ 4	1 089 240	976 090
Samar	5 428 700	5 297 510	+ 2	3 427 780	3 393 080
Sorsogon	1 500 010	1 450 00	+ 3	871 740	857 880
Sulu	639 310	495 40	+ 9	375 560	368 020
Tarigo	1 322 630	1 275 320	+ 4	9 8 760	876 740
Tariao	66 940	65 090	+ 3	42 400	40 120
Tayabas.	18 874 350	18 666 260	+ 1	10 389 780	9 829 010
Zamboanga	265 780	24 390	+ 10	168 060	166 1 0
Zamboanga.	5 094 220	2 998 160	+ 3	1 968 070	1 840 780
Philippine Islands	89 637 770	87 460 000	+ 2	53 165 880	5 154 600

TABLE G.—*Cocunut-Nuts gathered and tins produced, by provinces, for the years ending June 30, 1924 and 1925*

Provinces	Nuts gathered		Increase or decrease	Tins	
	1923	1924		1923	1924
	Number	Number	Per cent	Litres	Litres
Abra	62 000	53 000	+ 7		
Agusan	18 875 000	5 025 000	+ 69	859 800	1,077 510
Albay	49 827 000	45 800 000	+ 9	1,492 110	1 560 110
Ani-Tan.	6 823 000	5 193 000	+ 14	1,199 300	1,440,520
Bataan	167 000	24 000	+ 89		
Batanes	168 000	36 000	+ 806		
Batangas	14 182 000	10,550 000	+ 84		
Bold	44 876 000	46,537 000	- 8	1,696,160	4,119,870
Bulacan	44 300	25 000	+ 60	4,900	4,930
Bulwag	187 000	167 000	+ 12		
Casayan	1 485 800	1 416 000	+ 6		
Carabang Norte	27 619 000	17 636 000	+ 16	20,000	28 500
Carabang Sur	41 418 000	36 247 000	+ 14	2 174 100	2,652 010
Capiz	28 184 000	30,245 000	+ 26	6,452 100	7,120 770
Carida	2,803 000	2,434 000	+ 164		
Cebu	111,045 000	130,163 000	- 14	25 870,240	48,400,320
Corbata	2 500 000	1,700 000	+ 41	51 340	21 400
Davao	2 608 000	8 126 000	+ 37	75,120	71,710
Ilocos Norte	222 000	97 000	+ 232		
Ilocos Sur	1 945 000	2,476 000	- 21		
Iloilo	16,993 000	12,172 000	+ 84	18,042,430	20,040,470
Isabela	123 000	123 000			
Laguna	271 716 000	224 081 000		226,150	374,670
Lanao	4 803 000	6,362 000	+ 27	287,850	213,600
La Union	2,479 000	2,705 000	- 10		
Leyte	64,853 400	71 021 000	- 8	3 611 700	5,806 790
Mandugla	80 571 000	26 074 000	- 14	847 250	573 500
Marikina	16 293 000	14,071 000	- 1	614 180	489 800
Mindoro	19 441 000	16 588 000	+ 18	304 650	437 200
Mindanao	121,403 000	137 464 000	- 12	2,217,170	4,112 400
Mountain Province	80 000	136 000	- 47		
Nueva Ecija	180 000	188 000	+ 6		
Nueva Vizcaya	38 000	10 000	+ 66		
Occidental Negros	23,642 000	21,101 000	+ 12	6 929 050	6 222 450
Oriental Negros	46,445 000	51,920 000	- 10	2 700 920	3,499 800
Palaos	8,507 000	9,791 000	- 10	560,430	489,390
Panapa	36 000	41 000	- 10		
Pangasinan	26,261 000	14,416 000	+ 6	850	
Pico	14 000	6 000	+ 100		
Rosales	28,809 000	28 901 000	- 3	1,401 720	1 029,140
Samar	61,199 000	66,796 000	- 16	2,870 390	2172 040
Sorsogon	25,478 000	19 100 000	+ 27	224 810	225 020
Sulu	8,147 000	8 762 000	- 11	10,170	6 160
Surigao	28,373 000	24 387 000	+ 18	1,876 950	1,908,610
Tarlac	502 000	480 000	+ 4		
Ternate	240,421 000	308,287 000	+ 10	1 290 570	1 182,060
Tambora	3,433 000	3 150 000	+ 10	70 000	32 400
Tambora	98,930 000	62 157 000	+ 24	1 144 440	656 010
Philippine Islands	1,664,519 000	1,578,629 000		87,262,230	114 581 800

TABLE H.—Coconut—Consumption of fresh nuts and production of copra and oil (home-made), by provinces, for the years ending June 30, 1924 and 1925

Provinces	Number of nuts consumed (for food.		Production of coconut products				
			Copra		Increase or decrease	Oil	
	1925	1924	1925	1924		1925	1924
	Thou- sands	Thou- sands	Piculs ¹	Piculs ¹	Per cent	Liters	Liters
Abra.	53	54				1 000	450
Agusan.	504	353	98 780	22 570	+72	2 170	5 900
Aibay.	3,526	5,138	167 310	152 710	+10	112 450	281 450
Antique.	309	778	15,900	13 680	+16	86 410	47 220
Bataan.	167	54					
Batanes.	99	19				740	1 600
Batangas.	1 095	1,150	45 290	36 180	+25	1 090	4 040
Bohol.	1 044	621	185,860	227 370	14	102 960	84 190
Bukidnon.	55	23	10	10			
Bulacan.	127	127					
Cagayan.	1 404	1 336				7 660	8 050
Camarinas Norte.	508	281	101 160	78 050	+28	9 000	10 910
Camarinas Sur.	5,321	2 934	122 780	115 980	+7	401 640	307 550
Capiz.	774	736	96 770	82 190	+20	19 970	15 090
Cavite.	4 147	203	14 940	18 520	+10	1 160	1 310
Cebu.	3,099	2 126	400 590	464 440	-14	31 260	128 550
Colabato.	1 335	534	2 360	2 710	+40	21 650	15 270
Davao.	1,265	509	33 000	29 630	+8	2 320	6 040
Iloos Norte.	253	50				7 490	4 590
Iloos Sur.	1 145	1,485	2 140	2 070	+3	80 270	40 220
Iloilo.	2,542	277	47 400	41,090	+15	21 920	28 920
Isabela.	90	85				2 580	2 000
Laguna.	38 001	2 870	925 780	1 221 410	-24	545 030	342 340
Lanao.	1 391	928	22 960	19 840	+22	9 690	8 000
La Union.	445	582	5 685	8 070	+10	83 550	48 270
Leyte.	1,194	865	255 470	288 400	-12	19 650	14 800
Marinduque.	204	153	147 890	170 730	-15	800	1 440
Maribato.	189	221	62 870	63 710	-1	3 400	8 780
Mindoro.	525	921	63 020	59 990	+7	3 980	2 700
Misamis.	309	321	479 040	648 780	-12	11 940	11 160
Mountain Provinces.	42	67				1 920	7,015
Nueva Ecija.	186	179				1 310	720
Nueva Vizcaya.	13	9				1 060	830
Occidental Negros.	338	628	27 040	73 480	+18	5 830	10 220
Oriental Negros.	224	172	163 340	180 510	-14	4,480	6 650
Palewan.	247	256	31,300	34 790	-10	9 270	9 920
Pampanga.	35	41					
Pangasinan.	1,223	1,344	55 410	52 050	+6	126 990	150 800
Rizal.	14	5					
Romblon.	197	111	102 670	104 900	-1	1 530	8 050
Samar.	2 284	3 608	319 540	276 490	15	24 850	55 230
Sorsogon.	1 306	1 920	79 350	64 160	+24	49 180	12 800
Sulu.	702	1 379	29 780	30 820	-3	45 750	75 320
Surigao.	518	263	108 250	98 770	+9	19 840	8 450
Tarlac.	223	221	570	400	+27	17,690	18 060
Taybas.	22,913	1 055	1 285 510	1,205 780	+6	39 460	34 240
Zambales.	571	344	8 630	8 650		51 330	55 880
Zamboanga.	18,042	294	225 460	227 090	1	44 920	35 820
Philippine Islands.	110 678	45 593	5 726 800	4,119 150	7	1 593 450	1 865,770

¹ 1 picul: 63.25 kilos.

TABLE I—Coconut—Average prices and total value, by provinces, for the years ending June 30, 1924 and 1923

Provinces	Average prices per unit in the principal markets								Total value	
	Tuba per liter		Nuts per 100		Copra per picul		Oil per liter		1923	1924
	1923	1924	1923	1924	1923	1924	1923	1924		
Abra			P2 26	P2 26			P2 41	P2 76	P4 316	P4 828
Agusan			3 14	3 41	P10 31	P9 91	79	58	471,000	336 768
Albay	10	06	3 44	3 85	11 88	10 80	40	34	2,286,480	2 913 470
Antique	11	06	3 29	3 68	10 36	10 32	66	53	277,460	310 790
Bacalan			4 31	4 79					70,180	8 700
Batangas			4 39	4 86			36	32	6,380	4 080
Davao			3 33	3 38	10 84	8 63	38	26	819 960	300 020
Davao	05	45	3 11	3 50	10 43	9 01	22	28	2,438 220	2,404 620
Davao	05	45	10 21	4 98	9 28	9 00			4 140	2 038
Davao			9 19	8 15					17 070	13 880
Davao			4 12	4 71			71	1 08	17 410	81 348
Davao	12	26	3 42	3 81	10 72	8 91	27	31	8 116 720	871 130
Davao	06	06	3 35	3 08	10 06	7 78	39	31	1 616 140	1 213 320
Davao	08	07	3 45	3 14	9 24	8 81	41	40	1 378 870	1 59 390
Davao			2 76	3 40	11 88	11 15	21	18	291 720	1 188 470
Davao	07	07	3 76	3 16	10 14	8 97	28	27	6 276 720	7,680 100
Davao	21	13	3 27	4 70	10 03	8 35	73	81	139 360	84 070
Davao	13	13	3 79	4 29	10 13	8 48	87	88	414 220	318 450
Davao			3 87	9 12			48	48	28 340	0
Davao			4 06	5 69	11 84	10 00	76	74	100 280	133 320
Davao	06	06	2 83	3 22	10 32	10 38	47	71	1,840 820	1,840 740
Davao			2 78	4 67			63	1 26	9 260	8 060
Davao	13	02	2 51	2 14	11 29	8 87	48	69	11 691 040	12,680 450
Davao	07	10	3 24	3 63	11 23	10 23	40	45	336 420	285 970
Davao			3 37	3 10	9 63	8 43	64	48	97 310	92 330
Davao	11	10	3 07	3 33	10 31	8 23	34	23	3,408 620	2,282 810
Davao	08	08	3 44	3 21	10 66	8 24	25	28	1,626 210	1,476 730
Davao	07	11	2 65	2 74	9 33	8 89	40	29	864 860	890 330
Davao	05	06	3 65	3 41	10 13	8 23	21	23	670 670	546 300
Davao	06	06	3 44	2 97	10 63	8 13	20	31	8,819 420	2,230 490
Davao			9 83	8 74			50	40	4 850	8 710
Davao			11 33	8 70			39	59	22 210	17 180
Davao			10 34	12 64			47	58	2 890	1 080
Davao	03	06	3 11	2 94	9 56	10 06	34	36	1,346 900	1,588 100
Davao	10	09	2 66	2 63	9 34	8 41	39	43	1,912 830	1 886 370
Davao	05	06	1 33	3 94	9 34	9 08	28	23	333 860	373 810
Davao			1 32	8 04					2 670	0 240
Davao	10		4 17	4 15	10 13	9 33	44	43	663 710	607 440
Davao			4 43	9 13					820	448
Davao	07	07	2 61	2 34	11 15	10 50	29	16	1,241 280	1 261 650
Davao	14	14	3 28	4 03	11 33	8 84	29	30	3,484 720	3 253 888

TABLE J.—*Abaca—Area cultivated, area productive and production, by provinces, for the years ending June 30, 1924 and 1925—Continued*

Province	Area cultivated		Increase or decrease	Area productive		Production		Increase or decrease
	1925	1924		1925	1924	1925	1924	
	Hectares	Hectares	Per cent	Hectares	Hectares	Piculs ¹	Piculs ¹	Per cent
Mountain Province	0.370	0.040	+ 6	7.910	0.650	79.000	65.300	+ 21
Nueva Ecija	..	..	..	..	..	..	..	..
Nueva Vizcaya	..	..	..	..	..	..	..	..
Occidental Negros	2.680	2.640	..	1.700	1.810	6.200	6.000	+ 3
Oriental Negros	4.440	4.470	- 1	9.550	2,400	20,470	10,670	+ 40
Palaos	(?)	10	..	(?)	10	10	30	..
Pampanga	..	..	..	..	..	..	..	..
Pangasinan	..	10	..	..	..	..	..	..
Rizal	..	..	..	..	..	..	..	..
Romblon	1.100	1.100	..	300	900	7,200	8,100	+ 40
Samar	42.210	46.400	- 7	32,200	26,200	205,000	206,000	- 21
Sorsogon	30.440	65.300	+ 5	46,050	47,270	375,000	250,370	+ 6
Sulu	10.360	8.180	+ 4	7.040	7,050	31,460	30,300	+ 10
Surigao	24,420	28,340	- 4	20,700	21,120	164,000	184,510	..
Tarlac	..	..	..	..	..	..	..	..
Tayabas	800	1,000	- 21	200	900	6,670	4,300	+ 140
Zambales	..	..	..	..	..	..	..	..
Zamboanga	6,300	6,600	+ 5	4,710	2,500	22,100	16,500	+ 40
Philippine Islands	477,110	482,240	- 2	321,000	274,100	2,200,670	2,126,460	- 3

¹ 1 picul = 42.35 kilograms.² Less than 10 hectares.

TABLE XI.—Abaca.—Average yield per hectare, average price, and value of production, by provinces, for the years ending June 30, 1914 and 1915

Province	Average yield per hectare		Average price per kilo. in the municipal market		Total value in the municipal market		Increase or decrease
	1915	1914	1915	1914	1915	1914	
	Pounds	Picks					Per cent
Albay	10	8	P22.81	P14.45	P1,065,850	P417,800	+ 77
Albay	7	9	21.72	13.42	10,342,860	7,478,670	+ 42
Antique	2	2	10.21	10.49	20,000	22,270	+ 37
Bataan							
Bataan	3	2	20.80		200		
Batangas	3	2	30.85	26.82	51,030	89,680	+ 141
Bolton	1	1	11.65	11.27	12,720	61,030	+ 19
Bukidnon	8	8	14.27	10.70	473,190	489,480	- 4
Bulacan							
Cagayan							
Camariñas Norte	3	3	23.84	17.01	1,971,820	905,000	+ 111
Camariñas Sur	3	1	19.20	22.25	4,164,420	2,662,000	+ 54
Cebu	4	3	89.77	12.23	1,043,210	567,200	+ 80
Cebu	5	6	60.25	29.11	800,270	700,070	+ 10
Cebu	10	10	25.72	16.49	479,440	480,460	+ 61
Cebu	12	10	29.47	18.10	134,760	89,840	+ 81
Davao	9	10	37.04	18.47	5,643,410	5,643,410	+ 74
Davao Norte							
Davao Sur							
Iloilo	11	9	26.71	17.41	390,450	219,530	+ 61
Iloilo							
Iloilo	10	11	30.48	21.79	251,100	167,700	+ 42
Iloilo	17	11	17.58	9.80	267,190	70,180	+ 208
Iloilo							
Iloilo	8	10	30.76	12.25	11,183,740	6,886,100	+ 53
Marikina	8	8	32.57	19.00	225,410	203,340	+ 10
Marikina	7	8	13.34	12.61	20,000	247,030	+ 19
Mindoro	6	5	30.19	15.34	774,030	872,160	+ 34
Mindoro	10	10	10.84	12.03	1,231,500	638,650	+ 68
Mindoro							
Moravia Traviaga							
Nueva Ecija							
Nueva Ecija							
Occidental Negros	3	3	13.75	15.86	114,510	36,400	+ 20
Oriental Negros	7	7	16.49	9.52	463,430	179,970	+ 179
Pampanga	3	3	10.40	10.07	100	320	+ 69
Pangasinan							
Pangasinan							
Pangasinan	3	3	25.24	17.39	223,000	54,240	+ 108
Pangasinan	5	6	20.10	14.83	4,186,720	4,478,230	+ 4
Pangasinan	6	6	27.80	16.00	7,772,220	8,873,780	+ 101
Pangasinan	4	4	14.11	15.61	487,710	413,860	+ 16
Pangasinan	7	7	10.89	11.94	2,567,840	1,845,180	+ 58
Pangasinan							
Pangasinan	1	2	11.37	10.87	66,740	60,820	+ 68
Pangasinan							
Pangasinan	5	6	17.08	9.21	100,300	106,570	+ 107
Pangasinan							
Philippine Islands	7	8	22.53	13.82	64,296,840	42,125,200	+ 48

* Revised.

TABLE XII.—*Corn—Area cultivated and production, by provinces, for the years ending June 30, 1924 and 1925*

Provinces	Area cultivated		Increase or decrease	Production		Increase or decrease
	1925	1924		1925	1924	
	Hectars	Hectars	Per cent	Carrots ¹	Carrots ¹	Per cent
Abra	14 210	16,760	-16	186 310	108 310	+12
Agusan	3 678	3,620	+4	57 000	81 120	-7
Albay	1 750	2,360	-26	20 510	20 040	+7
Aniquian	4,470	4,060	+10	52 650	48 080	+10
Bacoor	620	630	-18	4,840	6,840	-37
Bataan	160	180	-6	1 480	2,080	-30
Batangas	19 370	17 630	+4	189 670	142,040	+34
Bicol	21 940	20 830	+5	263 730	208 890	+28
Bukidnon	4 180	3,480	+20	52 020	20,820	+78
Davao	4 340	4,400	-3	35 430	60 820	-46
Cagayan	22,750	23,730	-4	505 200	429 000	+10
Camaguey Norte	230	300	+22	2,100	2 820	-4
Camaguey Sur	870	1,000	-13	11,840	9,540	+24
Capiz	4,620	3,060	+33	48,410	40,560	+12
Cavite	9,040	8,680	+13	10 340	11 260	+71
Cebu	156 040	162,620	-4	3,430 830	3,822 000	-17
Comabato	4 800	4,260	+12	118 750	35 070	+43
Davao	2 740	2,210	+24	96 030	64 620	+48
Iloilo Norte	7,840	6,860	+15	109 570	112 600	-3
Iloilo Sur	8 120	7 400	+10	132,020	134,180	-2
Iloilo	15 680	13,710	+1	118 320	111,000	+6
Izabela	33 140	31 170	+1	598 450	479 870	+25
Laguna	1 020	1 200	-15	10 210	21 090	-57
Luzon	4 320	3,400	+25	109 440	126,600	-10
La Union	7 010	7,600	-5	80 690	99,910	-19
Laos	34,880	31 730	+8	430 340	444 820	+13
Marinduque	730	4 010	-26	7 130	3 700	+21
Mayaguez	2,330	4 010	-27	27 130	54 600	-53
Mindanao	3,160	2,310	+6	24 610	23 050	+6
Minurca	20,890	21,610	-3	340 060	354 330	-4
Monaghan Province	2,040	2,130	-4	20 460	25 870	-14
Nueva Ecija	9,860	8 270	+20	78 010	60 020	+32
Nueva Valencia	400	490	-22	6 760	9 790	-31
Oriental Negros	20,490	22,470	-8	332 460	465 610	-31
Oriental Negros	40,370	36 730	+4	678 310	447 640	+17
Palaos	360	940	-3	7,850	9 710	-25
Pampanga	6 760	6,970	-3	38 960	50 090	-20
Pangasinan	14 770	14 040	+5	310 730	187 080	+12
Rizal	1 000	730	+35	10 630	8 180	+29
Romblon	3 180	1,700	+90	36 160	11,240	+328
Samar	2 280	2,160	+2	24 060	26 320	-7
Sarangani	3,230	2,910	+12	31 000	27 470	+10
Sulu	160	10	+6	7 40	6 030	+6
Surigao	6,340	4,670	+35	89 140	48 390	+38
Tarlac	3 210	3,460	-7	48 630	53 990	-10
Tayabas	3,640	3,680	-1	30 120	32 770	-8
Zamboanga	2 090	410	+20	7 40	6 370	+44
Zamboanga	2 090	2 110	-23	31 070	63 060	-42
Philippine Islands	522,360	535 230	-2	7,490 110	7,830 020	-4

¹ 11 acres of shelled corn = 75 Hctars of 92.5 Hctars.

TABLE XIII.—Corn—Average yield per hectare, average price, and value of production, by provinces, for the years ending June 30, 1924 and 1925

Province	Average production per hectare		Average price per caran in the municipal markets		Total value in the municipal markets		Increase or decrease
	1925	1924	1925	1924	1925	1924	
Abra.	13	10	75.00	78.00	2,921,050	2,612,810	Per cent
Agusan.	16	27	4.48	8.30	253,208	325,230	+ 48
Albay.	12	9	4.10	4.78	84,608	103,800	+ 28
Antique.	12	12	3.18	4.08	162,970	223,260	+ 38
Bataan.	9	8	3.42	5.10	10,548	20,060	+ 27
Batanes.	0	18	5.00	5.00	5,300	30,220	+ 37
Batangas.	10	8	4.80	3.80	814,820	543,860	+ 50
Bohol.	12	28	4.20	4.40	1,116,870	1,173,660	+ 5
Bukidnon.	12	9	3.70	4.80	159,490	142,680	+ 35
Bulacan.	8	15	4.00	4.80	166,270	818,420	+ 68
Cagayan.	22	19	2.30	1.40	1,704,930	1,928,120	+ 11
Camagasin Sur.	13	18	3.80	3.20	30,780	9,270	+ 17
Camagasin Sur.	14	9	3.00	3.20	41,500	31,450	+ 32
Cebu.	11	10	3.18	3.10	183,240	127,510	+ 29
Cavite.	8	4	4.80	5.00	76,530	44,600	+ 71
Cebu.	16	13	4.15	4.40	10,838,980	12,944,490	+ 18
Cotabato.	26	28	3.30	3.40	387,320	334,180	+ 20
Davao.	18	11	3.40	3.80	122,330	84,180	+ 46
Iloilo Norte.	15	18	4.70	4.40	472,420	494,170	+ 4
Iloilo Sur.	16	18	4.80	5.00	694,080	671,890	+ 3
Iloilo.	8	8	5.00	4.10	480,790	415,480	+ 15
Iloilo.	18	14	5.30	3.70	1,945,930	1,188,080	+ 64
Iloilo.	13	18	4.10	3.80	50,160	80,350	+ 36
Laana.	22	23	5.50	4.20	412,470	130,940	+ 21
La Union.	12	18	4.10	5.20	372,640	650,230	+ 60
Leyte.	14	12	4.10	3.30	3,081,130	1,738,840	+ 47
Marikina.	13	12	3.62	2.70	8,608	10,020	+ 15
Marikina.	13	14	3.10	3.60	112,780	184,710	+ 42
Mindoro.	12	20	3.80	3.10	74,260	74,950	+ 1
Mountain Province.	10	16	3.80	3.70	1,328,790	1,062,750	+ 9
Mountain Province.	10	11	3.80	4.10	60,390	88,410	+ 34
Nueva Ecija.	11	8	4.20	4.40	333,710	287,620	+ 23
Nueva Vizcaya.	14	17	6.00	6.40	23,800	83,760	+ 25
Oceania Negroes.	18	16	4.20	5.00	1,243,180	2,778,650	+ 41
Oriental Negros.	19	12	3.10	4.10	1,027,730	1,628,820	+ 5
Palaos.	8	10	4.80	5.20	35,000	50,880	+ 20
Pampanga.	6	9	3.40	3.50	127,880	259,590	+ 27
Pangasinan.	14	18	4.70	3.70	863,000	678,080	+ 26
Rizal.	10	9	4.60	4.60	45,410	39,010	+ 16
Romblon.	11	7	3.80	3.10	118,810	28,440	+ 310
Samar.	11	11	4.10	3.80	103,060	88,220	+ 15
Samar.	10	9	5.10	3.70	39,010	202,370	+ 5
Sulu.	10	10	4.10	4.40	78,220	81,540	+ 3
Sulawesi.	12	10	3.80	3.80	173,260	185,290	+ 17
Tarlac.	15	14	4.80	4.30	192,020	147,630	+ 40
Tayabas.	8	9	4.80	4.40	145,570	143,430	+ 1
Zamboanga.	16	13	4.10	3.40	31,690	18,320	+ 71
Zamboanga.	14	20	3.80	3.30	117,760	179,200	+ 34
Philippine Islands.	35	14	4.00	4.20	80,787,250	38,883,800	+ 8

* 1 caran of shelled corn = 75 libras or 33.3 kilos.

TABLE XIV.—*Tobacco—Area cultivated and production, by provinces, for the years ending June 30, 1924 and 1925*

Provinces	Area cultivated		Increase or decrease	Production		Increase or decrease
	1925	1924		1925	1924	
	<i>Hectares</i>	<i>Hectares</i>	<i>Per cent</i>	<i>Quintals</i>	<i>Quintals</i>	<i>Per cent</i>
Abra	350	1 760	— 23	14 120	18 350	— 23
Acehan	320	285	+ 12	3 820	2 110	+ 12
Albay	200	348	— 42	1 110	1 330	— 17
Antique	20	20	—	300	300	—
Bataan	120	120	—	470	650	— 28
Batanga	440	465	— 5	4 940	5 710	— 13
Bolal	120	20	+ 32	1 310	950	+ 38
Bukidnon	70	85	+ 8	860	280	+ 20
Bulacan	12 280	12 635	+ 6	123 120	121 790	— 2
Cagayan	10	170	— 12	50	1 350	— 10
Camarines Norte	165	80	+ 100	620	420	+ 20
Camarines Sur	60	170	— 12	1 850	1 350	— 10
Capiz	165	80	+ 100	620	420	+ 20
Cebu	4 620	8 140	— 25	23 520	110 120	— 24
Cotabato	170	160	+ 70	2 050	1 370	— 50
Davao	100	85	+ 17	800	850	— 6
Iligan	8 850	2 345	+ 27	44 710	10 000	+ 34
Iloilo	1 160	1 235	— 6	10 420	10 240	— 2
Iloilo	2 540	2 540	— 0	17 100	22 220	— 23
Isabela	15 000	17 075	— 13	192 000	201 010	— 4
Laguna	340	305	+ 10	2 620	3 210	— 10
La Union	7 000	7 060	+ 13	110 070	101 320	+ 8
Leyte	1 730	2 430	— 24	14 720	10 340	+ 3
Marikina	80	20	+ 31	650	650	—
Marikina	210	180	+ 17	1 720	1 470	+ 17
Marikina	30	40	— 25	1 000	1 400	— 29
Marikina	130	125	+ 4	1 370	1 010	+ 36
Marikina	1 050	1 405	— 25	7 000	8 970	— 21
Marikina	1 400	1 700	— 18	12 100	1 790	+ 14
Marikina	300	170	+ 76	2 550	2 040	+ 25
Marikina	790	1 065	— 26	18 510	19 030	— 3
Marikina	1 400	820	+ 70	10 070	10 850	— 8
Marikina	60	25	+ 140	640	350	+ 78
Marikina	3 570	3 080	+ 16	120 000	121 610	— 1
Marikina	30	10	+ 200	120	50	+ 140
Marikina	230	275	— 18	1 460	3 140	— 53
Marikina	330	500	— 34	2 280	4 030	— 43
Marikina	10	10	—	70	50	+ 40
Marikina	220	15	+ 547	2 330	370	+ 530
Marikina	200	340	— 42	3 040	3 840	— 21
Marikina	1 210	915	+ 25	12 090	7 540	+ 61
Marikina	60	30	+ 100	280	410	— 32
Marikina	120	125	— 4	1 180	1 000	+ 18
Marikina	100	15	+ 33	890	630	+ 30
Philippine Islands	71 620	72 000	— 1	610 070	541 800	+ 13

1 quintal = 46 kilos.

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TABLE XV.—Tobacco—Average yield per hectare, average price, and value of production, by provinces, for the years ending June 30, 1924 and 1925

Provinces	Average yield per hectare		Average price per quintal		Total value		Increase or decrease
	1925	1924	1925	1924	1925	1924	
Abra.	Quintales	Quintales					Per cent
Aguascal.	10	9	76.81	77.80	795,388	713,788	+ 20
Albay.	9	11	14.68	12.46	52,533	38,728	+ 35
Antique.	5	5	17.18	18.94	19,072	14,568	+ 31
Bataan.							
Batanes.	5	5	31.08	9.26	1,350	820	+ 63
Batangas.	4	5	17.08	13.43	15,140	8,790	+ 59
Bohol.	11	12	12.29	11.28	20,850	64,440	+ 4
Bulacan.	11	10	14.83	15.46	18,010	15,500	+ 17
Bulacan.	5	4	11.65	8.04	4,160	2,220	+ 79
Cagayan.	14	15	13.58	9.78	2,439,790	1,937,400	+ 25
Camaguey Norte.			8.83		280		
Camaguey Sur.	5	5	17.12	15.61	18,000	25,420	+ 20
Capiz.	9	14	8.28	14.44	4,920	6,950	+ 18
Cavite.							
Cebu.	18	19	7.08	8.19	667,920	632,300	+ 2
Cebu.	12	14	11.27	8.85	23,580	12,180	+ 95
Davao.	9	8	18.08	17.62	12,870	10,200	+ 12
Iloilo Norte.	11	15	8.24	7.94	296,020	366,020	+ 17
Iloilo Sur.	9	8	8.36	8.12	57,140	81,250	+ 3
Iloilo.	7	8	10.48	10.35	242,210	409,100	+ 51
Islaola.	13	11	13.37	15.94	3,719,010	2,685,000	+ 28
Laguna.							
Lanao.	8	11	17.14	20.16	41,070	64,000	+ 20
La Union.	10	15	10.43	15.68	1,164,490	1,720,210	+ 33
La Union.							
Marikina.	11	9	21.38	27.23	465,810	496,800	+ 9
Marikina.	8	7	8.05	8.00	5,220	8,060	+ 4
Masina.	8	7	11.86	14.12	19,680	23,010	+ 15
Mindanao.	12	10	17.80	15.83	6,020	6,250	+ 1
Mindanao.	10	13	24.03	20.32	30,520	46,550	+ 33
Mountain Province.	5	4	22.45	8.23	87,140	33,460	+ 17
Navas.	2	3	11.10	12.11	128,910	128,820	+ 4
Navas.	12	12	20.56	18.09	72,580	70,810	+ 99
Oriental Negros.	20	19	7.64	7.78	110,250	158,350	+ 34
Oriental Negros.	10	12	8.57	20.21	112,720	114,120	+ 26
Pakwan.	11	14	11.84	15.00	7,530	6,080	+ 40
Pampanga.							
Pangasinan.	13	14	10.51	12.24	1,364,790	1,637,890	+ 11
Palau.	4	5	15.43	17.68	2,060	280	+ 184
Pambon.	6	8	9.49	10.99	13,780	27,620	+ 50
Pamp.	7	8	22.40	21.31	32,680	35,850	+ 40
Pampan.	7	8	16.80	21.80	1,120	1,410	+ 21
Pand.	10	10	10.41	9.49	24,500	3,510	+ 159
Pand.	11	8	10.06	27.82	102,400	79,000	+ 28
Pand.	9	8	11.71	11.15	129,890	89,100	+ 31
Pand.	8	14	22.21	26.19	6,500	14,840	+ 56
Pand.	8	8	18.07	18.40	19,820	28,740	+ 8
Pand.	8	7	18.32	14.79	10,960	7,310	+ 49
Philippine Islands.	12	13	13.06	17.27	11,894,890	11,506,420	+ 3

TABLE XVIII.—Cacao—Trees cultivated and production, by provinces, for the years ending June 30, 1924 and 1925

Provinces	Trees cultivated		Increase or decrease	Production		Increase or decrease
	1925	1924		1925	1924	
	Number	Number	Per cent	Kilos	Kilos	Per cent
Abra.	1,280	1,280		700	900	
Amara.	66,000	51,600	+25	23,700	22,100	+16
Albay.	65,600	54,000	+1	23,100	32,600	+3
Antique.	35,800	35,000	+2	12,300	17,000	+2
Bataan.	8,900	8,000	+1	2,000	2,100	+5
Benguet.						
Batangas.	71,300	70,300	+1	22,000	24,600	-11
Bohol.	151,400	144,600	+1	50,000	49,000	
Bukidnon.	87,800	77,800	+13	52,200	34,100	+53
Bulacan.	7,600	5,300	+35	2,600	4,300	-42
Cagayan.	22,200	10,600	+8	6,200	5,600	+11
Camarines Norte.	18,100	16,000	+5	12,000	11,400	+5
Camarines Sur.	72,600	70,300	+3	48,600	46,500	+26
Capiz.	12,200	24,200	-50	4,400	6,000	-32
Cavite.	154,000	142,600		100,000	106,700	-6
Cebu.	116,300	100,300	+7	120,000	110,000	+10
Davao.	3,300	4,200	+4	1,500	1,000	+30
Davao.	3,300	4,200	-31	2,400	2,800	-14
Ilocos Norte.	18,600	19,300	-4	4,100	4,000	+2
Ilocos Sur.	6,000	9,500	-31	3,300	5,400	-37
Iloilo.	82,600	80,300	+3	41,000	40,100	+2
Isla.	14,800	24,100	-60	6,100	8,300	-26
Iriga.	23,000	26,600	-13	20,700	26,700	-14
Lanao.	6,100	7,900	-24	2,100	5,600	-62
La Union.	61,600	63,100	+3	103,500	61,700	+6
Legazpi.	107,800	107,300		24,300	28,400	-16
Marikina.	9,700	7,600	+27	3,100	2,600	+19
Marikina.	1,400	2,100	-33	1,000	1,500	-33
Marikina.	63,200	64,700	-11	21,000	22,400	-6
Marikina.	28,500	35,300	-19	16,600	19,400	-14
Mountain Provinces.	13,300	20,100	-34	8,000	9,100	-12
Nueva Ecija.	12,800	12,100	+5	22,000	13,700	+61
Nueva Vizcaya.	16,500	12,500	+32	3,100	3,200	-3
Occidental Negros.	63,700	64,100	-1	45,000	48,600	-7
Oriental Negros.	126,300	164,300	-23	63,000	61,000	+3
Panama.	7,400	7,400		4,200	4,700	-11
Pangasinan.	6,600	11,700	-43	4,700	7,100	-34
Pangasinan.	44,500	50,000	-11	45,000	60,500	-26
Pangasinan.	0,200	8,200	-97	3,500	3,400	+3
Pangasinan.	4,900	3,700	+32	1,600	1,600	
Samar.	70,200	62,800	+12	23,000	28,900	-20
Samar.	17,700	17,200	+3	5,400	9,700	-44
Sulu.	600	300	+100	300		+300
Suliga.	51,300	39,900	+28	28,100	23,600	+19
Tarlac.	2,700	4,800	-44	3,100	7,300	-58
Tayabas.	87,800	74,200	+18	44,500	38,100	+17
Zamboanga.	6,400	6,900	-8	2,900	2,600	+11
Zamboanga.	4,400	9,000	-50	4,700	4,300	+10
Philippine Islands.	2,000,000	1,500,000	+33	1,311,900	1,100,000	+19

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TABLE XIX.—Cacao—Average yield per tree, average price, and value of production, by provinces, for the years ending June 30, 1924 and 1925

Province	Average yield per tree		Average price per kilo in the municipal markets		Total value in the municipal markets		Increase or decrease
	1925	1924	1925	1924	1925	1924	
	Kilos	Kilos					Per cent
Abra.....	1.46	1.50	P1.22	P1.10	P1,100	P1,000	+ 10
Agusan.....	1.64	1.62	.90	.80	18,700	27,300	- 2
Albay.....	1.14	1.15	.63	.70	23,000	22,200	+ 4
Antique.....	1.00	.83	1.36	1.30	10,000	32,400	- 28
Bataan.....	1.00	1.08	1.36	1.30	2,700	3,600	- 4
Batanga.....	1.00	1.00	1.30	1.30	26,100	26,400	- 5
Bicol.....	.63	.62	.53	.57	32,700	51,900	- 4
Bukidnon.....	.30	.30	.46	.47	21,000	18,000	+ 40
Bulacan.....	1.00	1.05	1.45	.96	5,100	4,100	+ 16
Cagayan.....	1.07	1.02	.74	.60	5,600	4,800	- 4
Camarines Norte.....	1.12	1.07	.80	.77	9,600	8,500	+ 13
Camarines Sur.....	1.64	1.14	.99	1.00	48,200	40,000	- 26
Capiz.....	.72	.83	1.07	.97	4,700	6,200	- 25
Cavite.....	1.10	1.40	1.33	1.33	123,800	120,800	+ 11
Cebu.....	1.00	1.03	.96	.83	104,700	103,500	+ 23
Comabato.....	1.04	1.11	1.31	1.30	1,700	1,900	- 11
Davao.....	1.20	1.26	1.00	1.00	3,400	2,500	- 4
Iloilo Norte.....	.84	1.43	1.00	1.00	4,200	4,000	+ 6
Iloilo Sur.....	.81	.87	.78	.60	3,400	4,800	- 50
Iloilo.....	.09	1.00	1.22	1.18	63,000	37,800	+ 9
Izabela.....	.93	.76	.87	.87	5,900	4,000	+ 29
Laguna.....	2.74	1.74	1.18	1.31	34,700	49,100	- 30
Marikina.....	.46	1.02	.83	.76	2,300	8,000	- 69
La Union.....	1.02	1.60	1.40	1.31	143,600	120,600	+ 11
Laos.....	.91	1.07	1.07	1.08	36,700	68,400	- 40
Marinduque.....	.76	.79	1.00	1.00	3,900	3,000	+ 89
Misamis.....	1.00	1.00	1.20	1.09	1,200	1,600	- 30
Mindoro.....	1.04	1.02	1.18	1.09	24,700	24,400	+ 1
Palawan.....	1.13	1.39	1.10	.90	10,100	18,000	- 3
Mountain Province.....	.87	.87	.87	.80	7,000	8,000	- 3
Nueva Ecija.....	1.22	2.04	1.01	1.01	18,900	13,800	- 3
Nueva Vizcaya.....	1.00	1.09	1.13	1.09	3,500	2,500	- 3
Oriental Negros.....	1.00	1.09	1.07	.90	42,200	47,400	+ 3
Occidental Negros.....	.60	.81	.95	.84	88,400	69,100	+ 11
Palaos.....	1.03	.97	1.14	1.23	7,100	7,000	+ 1
Pampanga.....	1.09	1.15	1.02	1.24	5,800	8,900	- 26
Pangasinan.....	.93	1.27	1.20	1.36	63,400	94,400	- 33
Rizal.....	.60	.81	.90	1.03	8,000	4,500	- 36
Romblon.....	.84	.84	1.10	1.06	1,900	1,700	+ 12
Samar.....	.69	1.02	.81	.87	19,400	25,300	- 23
Sorsogon.....	.57	1.45	1.13	.96	6,100	8,300	- 26
Sulu.....	1.60	.....	.33	.....	100	.....	+ 100
Surigao.....	.87	1.08	.54	.89	20,400	21,100	+ 25
Tarlac.....	1.19	1.07	.84	.83	3,000	6,000	- 62
Taybas.....	.77	.62	1.27	1.23	83,800	30,800	+ 91
Zamboanga.....	1.00	1.21	1.07	1.24	8,100	5,700	- 40
Zamboanga.....	1.42	1.80	.89	.72	4,300	3,100	+ 68
Philippine Islands.....	.95	1.00	1.07	1.04	1,182,100	1,220,800	- 3

TABLE XX.—Coffee—trees cultivated and production, by provinces, for the years ending June 30, 1924 and 1925

Province	Trees cultivated		Increase or Decrease	Production		Increase or decrease
	1925	1924		1925	1924	
	Number	Number	Percent	Kilos	Kilos	Per cent
Abra.....	12,604	12,100	+ 4	7,300	6,600	+ 10
Agusan.....	19,400	29,300	- 5	4,000	3,400	+ 16
Albay.....	10,600	11,900	- 11	2,000	1,200	+ 66
Antique.....	10,800	19,000	+ 4	4,300	4,700	- 8
Bataan.....	3,600	4,300	- 19	900	800	+ 12
Batanes.....	100	100	.....	.....	.....	.....
Batangas.....	320,200	307,100	+ 4	123,300	109,000	+ 12
Bicol.....	58,800	65,400	+ 8	14,600	11,800	+ 23
Bulacan.....	54,600	65,200	- 17	30,100	40,800	- 6
Bulwagan.....	4,400	4,800	+ 7	1,200	1,300	- 8
Cagayan.....	21,400	10,800	+ 10	4,500	9,400	- 51
Camagasin Norte.....	.....	100	.....	.....	.....	.....
Camagasin Sur.....	11,600	10,500	+ 8	7,400	5,300	+ 39
Capiz.....	10,800	20,600	- 4	4,400	3,800	+ 15
Cavite.....	234,700	214,200	+ 9	217,400	212,000	+ 2
Cebu.....	23,700	21,200	+ 11	15,500	14,400	+ 10
Cotabato.....	1,100	800	+ 22	700	600	+ 16
Davao.....	2,100	8,900	+ 1	4,800	4,600	+ 4
Ilocos Norte.....	41,300	39,600	+ 5	15,300	10,200	+ 4
Ilocos Sur.....	27,000	20,700	- 2	12,800	26,500	- 5
Iloilo.....	264,600	264,500	+ 7	165,100	91,800	+ 14
Isabela.....	12,000	11,900	+ 10	8,200	7,300	+ 12
Laguna.....	15,600	15,500	+ 1	4,800	4,700	+ 2
Laos.....	20,300	74,500	- 35	25,400	40,100	- 21
La Union.....	81,300	75,000	+ 7	75,800	70,100	+ 4
Leyte.....	10,800	10,500	.....	6,800	6,200	+ 7
Marikinaque.....	21,000	17,700	+ 18	15,500	14,200	+ 9
Masbate.....	200	300	.....	100	100	.....
Mindoro.....	30,000	40,000	+ 8	15,000	17,000	+ 6
Misamis.....	9,400	9,400	- 23	6,400	5,700	+ 12
Muntala Province.....	431,700	423,000	+ 2	120,400	115,000	+ 4
Nueva Ecija.....	26,700	26,600	- 2	15,700	14,900	+ 5
Nueva Visaya.....	20,500	21,500	+ 22	6,000	5,600	+ 9
Occidental Negros.....	12,700	3,800	+ 48	5,000	4,700	+ 25
Oriental Negros.....	170,000	163,400	+ 1	130,100	140,500	- 9
Palawan.....	7,200	7,200	.....	4,400	4,300	+ 4
Pampanga.....	400	400	.....	300	300	.....
Pangasinan.....	111,700	104,900	+ 6	44,800	42,600	+ 5
Rizal.....	5,300	5,100	+ 4	1,700	1,300	+ 11
Romblon.....	1,000	1,000	+ 6	500	400	+ 25
Samar.....	2,500	10,000	- 11	2,400	3,000	- 20
Sorsogon.....	8,000	3,100	+ 22	3,400	3,000	+ 13
Sulu.....	900	880	+ 12	700	500	+ 40
Surigao.....	3,400	3,300	+ 3	1,600	800	+ 100
Tarlac.....	9,300	8,600	+ 12	2,700	2,800	+ 10
Tayabas.....	25,700	24,200	+ 6	8,700	4,500	+ 20
Zambales.....	7,800	6,800	+ 7	1,000	1,700	- 6
Zamboanga.....	24,200	23,000	+ 10	7,400	6,900	+ 6
Philippine Islands.....	2,015,000	2,208,400	+ 3	1,170,500	1,170,000	.....

TABLE XXI.—Coffee—Average yield per tree, average price and total value, by provinces, for the years ending June 30, 1924 and 1925

Provinces	Average yield per hectare		Average price per kilo		Total value in the principal markets		Increase or decrease
	1925	1924	1925	1924	1925	1924	
	Kilos	Kilos	P.	P.			Percent
Abra.....	1.29	1.08					
Agusan.....	.38	.22	P. 42	P. 41	73,108	72,948	+ 7
Albay.....	.48	.31	.69	.62	2,800	1,500	+ 32
Antique.....	.48	.06	.56	.75	1,800	900	+ 101
Batanes.....	.64	.57	1.31	1.02	8,200	4,600	+ 8
Batavia.....			1.00	1.00	800	800	+ 12
Batangas.....	.94	1.35	.43	.46	80,500	81,500	— 6
Bohol.....	.42	.35	.78	.80	11,100	9,400	+ 19
Bukidnon.....	1.10	1.12	.62	.88	18,700	19,800	+ 24
Bulacan.....	.70	.72	1.17	1.23	1,400	1,400	— 12
Cagayan.....	.68	1.22	1.80	.71	4,500	6,700	— 27
Camarines Norte.....							
Camarines Sur.....	1.72	.77	.68	.77	4,200	4,100	+ 19
Capiz.....	.61	.86	.64	.65	2,800	2,800	+ 12
Cavite.....	1.47	1.57	.60	.84	182,500	187,300	+ 8
Cebu.....	.58	.87	.68	.62	10,700	9,800	+ 12
Cotabato.....	1.17	1.00	.57	.57	400	400	.....
Davao.....	1.65	.98	.82	1.00	4,700	4,600	+ 2
Ilocos Norte.....	.70	.62	.95	1.01	12,800	12,300	+ 2
Ilocos Sur.....	.85	1.02	.32	.87	33,900	32,100	+ 3
Iloilo.....	.80	.85	.70	.77	79,800	79,900	+ 12
Isabela.....	0.14	1.30	.83	.87	7,200	4,900	+ 47
Laguna.....	.60	.61	1.00	1.02	4,800	4,800	.....
Laos.....	.30	.74	.67	.66	24,300	30,000	+ 10
La Union.....	1.18	1.28	.87	.87	73,100	75,700	— 4
Leyte.....	.30	1.03	.86	.78	5,000	4,700	+ 0
Marikina.....	.99	1.41	.43	.42	6,000	8,000	+ 10
Marikina.....	.60	.60	1.00	1.00	100	100	.....
Mindoro.....	.62	.86	.64	.65	18,800	14,600	+ 2
Misamis.....	1.42	1.00	1.01	1.00	8,600	6,200	+ 4
Mountain Province.....	.45	.40	.61	.65	61,400	62,000	— 1
Nueva Ecija.....	.77	.73	.63	.64	9,600	8,600	+ 3
Nueva Vizcaya.....	.62	.68	.72	.78	4,700	4,500	+ 0
Occidental Negros.....	.88	.81	.71	.72	4,200	3,400	+ 23
Oriental Negros.....	2.82	2.84	.72	.68	93,700	88,100	+ 6
Palawan.....	1.10	1.14	.86	1.00	4,300	4,200	+ 2
Pampanga.....	1.60	1.60	1.33	1.33	400	400	.....
Pangasinan.....	.68	.64	.87	.84	80,200	76,800	+ 12
Rizal.....	.69	.78	1.23	.86	2,100	1,800	+ 18
Romblon.....	.62	.60	1.00	1.00	600	400	+ 50
Samar.....	.65	.87	1.17	1.20	2,800	3,900	— 30
Sarangani.....	.87	.68	1.05	.83	2,400	2,000	+ 44
Sulu.....	1.17	1.26	.67	.40	400	200	+ 100
Surigao.....	1.00	.89	1.00	1.00	1,000	800	+ 25
Tarlac.....	.62	.53	.62	.65	1,600	1,200	+ 16
Tayabas.....	.60	.47	.82	.80	3,600	3,100	+ 16
Zambales.....	.41	.85	.81	.82	1,300	1,400	— 7
Zamboanga.....	1.17	1.03	.62	.67	4,700	4,200	+ 2
Philippine Islands.....	.91	.90	.71	.68	218,300	208,800	+ 3

